

# Ships 2021

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**Michael Meyer**  
Deputy Chief Editor

## No need to hide

What a year 2021 has been for the German maritime industry. The Corona pandemic still had the country and also the shipbuilding industry in its grip, but the industry once again proved its resilience and adaptability.

While at the time, the group MV Werften and the Lloyd Werft under the aegis of the Asian owner Genting is coming to an end. At the turn of the year, the parent company was no longer able to counter the effects of the pandemic. There are already some interested parties who want to continue the shipyard operations with new fresh ideas. A good sign!

Other companies have been able to attract attention with innovative newbuildings and remarkable new orders, whether in the yacht, naval, RoRo or MPP market. Names like Lürssen, Abeking & Rasmussen, Meyer Werft or Fassmer – to name just a few examples – still stand for high shipbuilding quality and competence in the world market.

This should not change in the future, and the shipyards are fighting for it. The political omens are not bad either. After the federal elections in autumn, a new government has been formed that is pro-progress and aware of the need for ecological transformation. It has some homework to do to help shipbuilding compete fairly on a global scale. There is a lot to do, but some political signals are quite positive.

Politicians and industry see great opportunities in the upcoming decarbonisation of shipping. This will require innovative and flexible solutions – a great challenge for shipbuilders, engineers and developers. But at the same time a great opportunity. For this is precisely the field in which German shipyards have their strengths. If the homework is done, for example, creating a setup for future challenges, integrating intelligent processes and securing know-how. And if politics back up its words with deeds, there is every reason to be confident. In any case, the current situation has no reason to hide.

In this special publication, we bring together the relevant players. We think it is worth taking a closer look at the activities of the German shipyards. Rest assured, there are various interesting projects included. For the first time, we also have dedicated market reports on German shipbuilding in the naval and inland shipping segments – two important markets with great potential for shipbuilders and suppliers.

Of course, we also use this annual report again to award the traditional HANSA »Ship of the Year« prize. For the 2021 award, the jury chose the »Nord« – an impressive yacht project by the Lürssen Group. Details on this and much more information on German shipbuilding can be found on the following pages.

Enjoy reading!

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**Reinhard Lüken**

General Manager  
German Shipbuilding and Ocean  
Industries Association (VSM)



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More stringent emission thresholds have entered into force in recent years and there are more to come with the goal to reduce harmful emission from ships in all forms. Monitoring and reporting obligations will increase transparency in the market and disable sub-

standard operations. This is good news for the serious market players on the operation side as well as on the hardware side.

The maritime industry is facing the task to manage the transition of the entire global fleet at sea as well as for inland navigation to embrace climate neutrality asap. To deliver on this goal, we need to rethink both the sources of energy as well as its consumption.

Already today, despite using the cheapest energy source available, fuel costs are in most cases the single biggest cost factor in shipping. With the introduction of a carbon price and the use of e-fuels, this cost factor is bound for a sharp increase. In addition, ever more end-customers are also keen to bring down their own emission profile.

Clean shipping will drive the maritime sector. More sophisticated technology will make ship operation more complex and more costly, however, offering at the same time more room for a sound return on investment on efficiency gains.

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## Claudia Müller

Federal Government Coordinator  
for the Maritime Industry



# *No doubt that a fresh start is possible*

At the beginning of January, I took over the office of Federal Government Coordinator for the Maritime Industry. My start in this new role has been marked by a tremendous challenge: the insolvency of MV Werften, which was announced on 10 January 2022. This was a difficult day for me, not only because of my responsibility for the maritime industry but also because of my personal ties with Mecklenburg-Western Pomerania, and my thoughts are with the employees affected by this development.

At the same time, this day highlighted just how important it is to look ahead. Even though the shipbuilding industry in Germany currently finds itself in difficult waters due to the pandemic, I am still convinced that it has a future. Germany is home to maritime high-tech. Germany produces state-of-the-art cruise liners, and German shipyards are second to none in the field of specialist shipbuilding, including the construction of research vessels. These capabilities allow us to develop innovations and make us global market leaders. It is this know-how that we will use to shape the technological transformation, i.e. the transition in the energy and transport sectors. We are aiming for climate-neutral vessels, whether newly built or retrofitted. Policy-makers cannot achieve this alone, but only in close cooperation with the maritime industry. This is an area where there is still a lot of work to do for German and European shipyards. The Federal Government will lead by example. The federation also has Germany's largest fleet of vessels. So it is up to us to set standards and build trust in new technologies, propulsion systems and fuels.

Beyond this, we also want to set incentives for climate-friendly shipping at the European level. This is why our coalition agreement states that we want to work towards a European fleet modernisation programme.

Parallel to this, we will continue to use our research and innovation programmes to ensure that we retain an edge on important technological developments, for instance, in the fields of climate-neutral propulsion or digital applications for shipping.

All this support will not change the fact that the shipping industry also has a responsibility to shape its own future and actively reposition itself for this. The current crisis shows that only those shipbuilders who are versatile and able to deliver low-emission, sustainable and innovative products will be able to survive the international competition. Despite all the success seen in recent years, the intense focus German shipbuilders have placed on the cruise shipping industry has made them more vulnerable to crises. It is important to keep up with future demand for innovative technologies and alternative propulsion systems »made in Germany«. This is why the success of Germany's shipyards will much depend on their ability to offer a balanced, economically viable product portfolio that can withstand global competition.

I have no doubt that this fresh start is possible. Germany has excellent skilled professionals working in the field, be it as engineers or construction engineers, who are able to build the next generation of vessels. I want us to invest even more in the training and continuing education of these skilled professionals to help safeguard the shipbuilding industry in Germany for the long term.

I am looking forward to my work as Federal Government Coordinator for the Maritime Industry in the coming years. I want to help secure Germany's future as a nation of shipbuilders and make it a leader in the transformation towards climate-neutral shipping. ■

# Opportunities and (political) hurdles

German shipbuilding continues to hold its own in the world market despite some problematic conditions. There are positive political signals, but the decision-makers in Berlin, Brussels and London still have some work to do

A significant trend in global shipbuilding in 2021 was the enormous growth in the order book for container ships. Due to a large number of orders for newbuildings, it now accounts for almost a quarter of the fleet in service. The shipowners' hunger for tonnage led to a sudden shortage of shipyard capacities, especially in Asia – accompanied by significantly higher prices. This offers opportunities for shipbuilding in Europe and Germany, but more on that later.

The all-defining theme for the entire maritime industry in 2021 was again the green transformation, the energy transition at sea, the decarbonisation of shipping. After the experiences and developments on the international political stage, the shipbuilding industry can draw a mixed balance.

Overall, however, according to the German Shipbuilding and Ocean Industries Association (VSM), the outlook for future needs gives reason for optimism, as it is clear beyond doubt that consistent and swift action is needed: »Whereas in early 2021, some still took the position that shipping had already done the essential homework with the IMO climate protection strategy already adopted in 2018, there is now no doubt that a reduction in climate gas emissions of only 50% by 2050 will not be enough for shipping«. In the meantime, numerous shipowners' associations have also committed themselves to the goal of climate neutrality by 2050.

Irrespective of the sustainability imperative, the association sees climate protection »as a mega opportunity for the maritime industry in Germany«. Almost the en-



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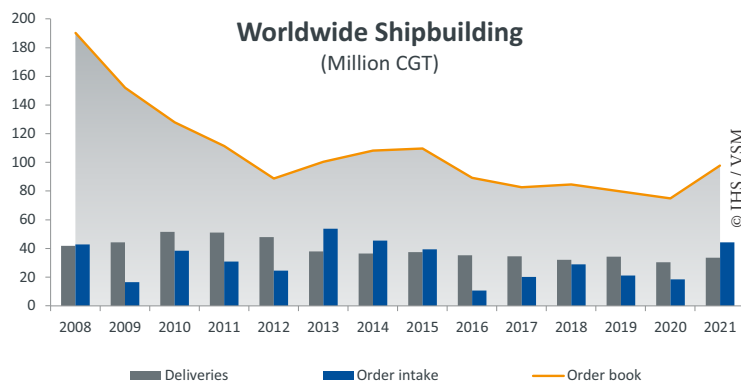




tire existing fleet must be converted, power generation offshore massively expanded, and effective infrastructure for climate-neutral fuels built. »Our engineers already have answers for this, and the new pressure to act is transforming many of these answers into marketable products.

The crucial thing is to get the necessary investments underway quickly now.« To overcome the significant uncertainties regarding the availability and costs of climate-neutral fuels and the regulatory framework, appropriate incentives are now necessary, VSM says.

Nevertheless, there were also political disappointments. In particular, the 77<sup>th</sup> meeting of the Marine Environment Protection Committee of the IMO (MEPC 77), which took place after the global climate conference COP26 in November, provoked strong criticism from the industry. »No encouraging signals« was the conclusion of the VSM, which as an accredited institution, exercises the



representative mandate for the European shipbuilding industry and is actively involved in the negotiations.

### Great concern over EU taxonomy regulation

At the European level, the German shipbuilding industry is campaigning for the best possible framework conditions, not least in the interests of climate protection and

# Pushing the limits

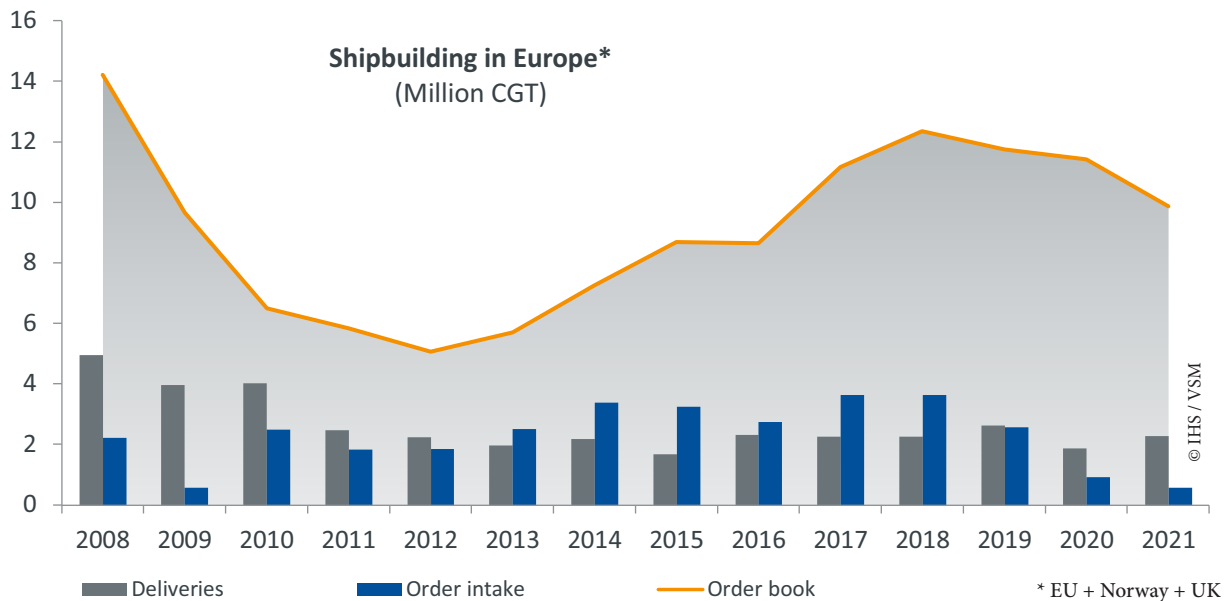
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the associated opportunities for the industry. In VSM's view, the Green Deal and the so-called »Fit for 55« programme of the European Union contains a plethora of measures which, although they have many promising approaches, also have considerable factual deficiencies and inconsistencies. Especially in the area of the EU taxonomy regulations in the works, the industry is voicing the gravest concerns as one of the largest regulatory initiatives ever started by the EU, reporting obligations for companies are being established. A corresponding classification system should ultimately

*»The example of shipbuilding, for which existing WTO rules do not offer effective protection against the most extensive distortions of competition, is explicitly mentioned in many places, without developing adequate solutions so far.«*

lead to a redirection of capital flows into sustainable investments. »Unfortunately, the structures and processes of the taxonomy were set up in such a way that factual or technical advice from the industry was not taken into account,« says the VSM.

In the meantime, the Commission has reacted to the massive justified criticism: In future, representatives of the maritime industry will be involved in the corresponding expert group, the so-called taxonomy platform. The German association has a central role in this, as it has been given the mandate to represent the industry.



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Another vital topic at the European level concerns trade policy. Fundamental developments are also underway in this field. Not only against the background of the pandemic did the realisation grow that there is increasing dependence on essential goods also from countries that are to be classified as systemic rivals. The keyword of »strategic autonomy« has gained much importance.

As announced in a White Paper, the European Commission has meanwhile presented a proposal for a regulation for an additional set of instruments against subsidies in third countries.

»The example of shipbuilding, for which existing WTO rules do not offer effective protection against the most extensive distortions of competition, is explicitly mentioned in many places, without, however, developing adequate solutions so far. So there is still a need for intensive action here,« it says.

In Germany, 2021 marks the end of the Merkel era and the beginning of the term of office of the new Chancellor Olaf Scholz. The year will also be remembered for policies to contain the Corona pandemic. They have a lasting impact on numerous sectors, including the German shipbuilding and marine technology industry. Infection control measures are costly; internationally disrupted supply chains lead to delays in production, and travel restrictions make sales more difficult and hamper customer service.



### New federal government

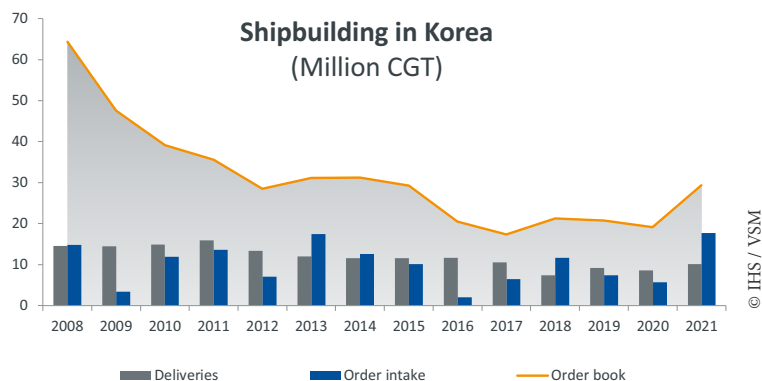
However, the industry takes a positive view of the fact that the new federal government consisting of the social-democratic SPD, the liberal FDP and the Greens quickly found each other after the election in September, and ambitious goals were agreed upon. For the maritime industry associations and all other sectors, this was »an important milestone«, towards which many activities of the past twelve months were directed. At the beginning of the year, the 12<sup>th</sup> National Maritime Conference (NMK) was considered a »great success«, at which the essential maritime action requirements for the coming legislative period were developed. »Our substantive goals met with broad support from all centre parties, which is now also reflected in the coalition agreement,« says the VSM.

However, important measures could also be launched before the end of the 19<sup>th</sup> legislative period. First and foremost, a number of eagerly awaited procurement projects for the German Navy. The budget committee ap-



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proved more than 7 bn € shortly before the summer break. The funds released include both necessary modernisation measures and obsolescence elimination in the fleet in service as well as new procurements. These include, for example, two state-of-the-art naval fuel supply vessels, three fleet service boats and two U212 CD submarines in a joint project with Norway and four support vehicles for WTD 71. »These decisions make important contributions to the security of all of us, but also to securing our industrial capabilities, without which

national defence cannot be provided,« says the association.

### Progress in funding programmes

However, many structural issues related to the procurement of new units and the maintenance of the existing fleet have not yet been solved. They remain an urgent task for the new house leadership in the Ministry of Defence. »We have

once again underlined the commitment of the German naval shipbuilding industry to its responsibility as an integral part of the country's defence and security architecture during the 12<sup>th</sup> NMK. We will continue to build on this in the new legislative period,« says the VSM.

Important progress was also made in 2021 in funding programmes. Several new support programmes have come into force, such as the one for inland and coastal shipping with more than 45 mill. € per year or the pro-

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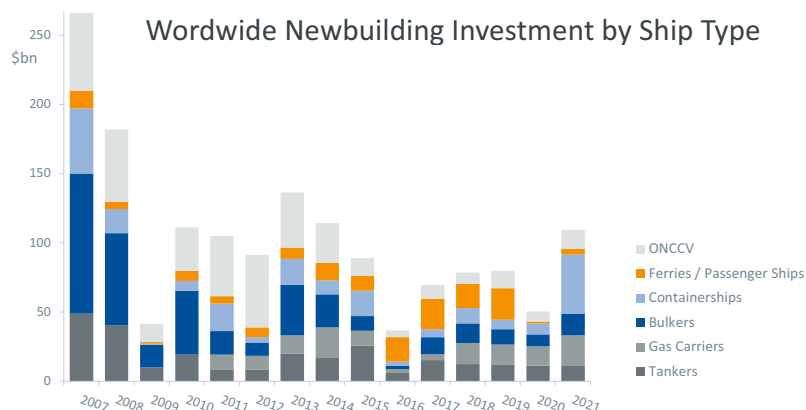


grammes for new LNG bunker ships and the promotion of shore-side power plants with about 50 mill. € and 17.5 mill. € per year respectively. In June, the »Memorandum of Understanding of the Zero Emission Waterborne Transport Partnership« was signed at the European level after years of preparatory work with the participation of the VSM. 530 mill. € in additional funds until 2027 were thus secured for the partnership's objectives. The Association's own Center of Maritime Technologies (CMT), which has been in operation since the beginning of 2020, supports members in making the most of the additional opportunities and advancing their solutions together with European partners.

### Focus on suppliers and value chain

In Germany, the federal states play an important role in shipbuilding policy, providing the industry with guarantees, loans, and funding programmes. Especially in the

Wordwide Newbuilding Investment by Ship Type



cruise segment, which is highly relevant for the German shipbuilding industry, many shipowners had to cope with heavy blows due to the Corona pandemic – with corresponding consequences for their investments in the fleets. In Germany, Meyer Werft and MV Werften were particularly affected. For MV Werften, 2021 did not get off to a good start. The Asian owner Genting – also the client for new ships – was unable to grasp its financial problems. This was followed by a severe blow for the shipbuilding industry in the German northeast, and the

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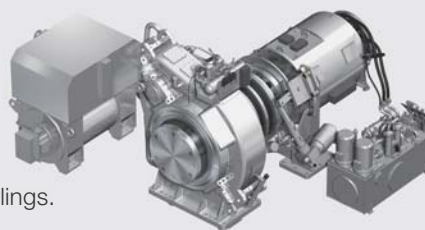
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group had to file for insolvency. Immediately, the search for a new owner was started in order to secure the know-how.

Fortunately, the major cruise shipping companies managed to obtain sufficient liquidity on the capital market so that no order cancellations were necessary.

In this way, leeway time can be created by stretching out orders, making it easier to adjust to the changed market situation. However, this year's hoped-for break-even for most cruise operators is not yet realistic. The enormous debt of almost 60 mill. € of the industries big three alone means that significant orders for new ships cannot be expected in the coming years. This results in difficult prospects for this market segment's, particularly complex value chain. Public perception often focuses on shipyards.

In the VSM's view, it should not be overlooked that the adverse employment effects in the downstream value chain are many times greater: »The focus must now be on maintaining the substance and long-term competitiveness. In this respect, short-term adjustments are necessary in order not to gamble away long-term success.«

The great uncertainty regarding the future prospects of several shipyard and supplier locations in Germany is creating depressing circumstances for many employees. Declining numbers of applicants to the shipbuilding branches of study prove that this uncertainty may already be having an impact on the development of tomorrow's skilled labour.

### Growth markets

Despite the challenges, there are also opportunities and growth markets for German shipbuilding. The sharp rise in orders in Asia, especially in the container segment, is stimulating demand for important segments of the supply industry. New orders were also secured for mega yachts and government vessels. The capacity utilisation of the repair yards was satisfactory in the past year.

Especially the high utilisation of Asian shipyards and the associated enormous price increase for newbuildings give European and German shipyards hope for additional business. In some cases, newbuilding series from the container and multipurpose shipping sectors are even being enquired about and negotiated, such as at the Flensburg shipyard FSG. With Tennor Holding as its new owner and following the takeover of the Nobiskrug shipyard, FSG is open for new projects. One focus is to be on military newbuildings (FSG) and the yacht business (Nobiskrug).

The German shipbuilding industry has been known for the latter for years. Among the world-renowned brands are the Lürssen Group – which has spun off its naval division to



strengthen its competitiveness in a fiercely competitive market – and the shipyard Abeking & Rasmussen, which last year secured another order for a 120-metre yacht.

Incidentally, the yacht's hull is being built by the Neptun shipyard, a member of the Meyer Group, which was thus able to close a looming gap in orders. Its parent company, the Meyer Group, with other locations in Papenburg and Turku, Finland, also wants to profit from the positive impulses in the yacht market. In autumn, it announced, to great international attention, that it would enter the business with environmentally friendly mega-yachts. The shipbuilding company sees this as an opportunity to compensate for the corona-related dip in demand for cruise ships. However, a newbuilding contract was also signed in this segment: The Japanese NYK Group ordered a medium-sized ship with LNG propulsion and space for 744 passengers.

#### New owners and new projects on the horizon?

For the Bremerhaven-based Lloyd Werft, after delivering the mega-yacht »Solaris«, and for MV

Werften the insolvency administrator are looking for buyers. The search for an investor for the Hamburg shipyard Pella Sietas has been unsuccessful so far after the Russian owner has been unable to present either a buyer or new orders.

Positive signals were recently heard from the river Ems at the end of the year. Fosen Yard Emden might get an order for the six coasters. As soon as the final financing details have been clarified, work could start.

VSM boss Reinhard Lüken made it clear in the HANSA PODCAST in autumn that he could well imagine up to 70 newbuildings a year by German shipyards under certain circumstances. If the general conditions can be changed in the next two to three years, he said, »it will be possible to ramp up the number of units again and build ships in various market segments.« Lüken referred to 2005 when Angela Merkel became Federal Chancellor and 70 newbuildings were delivered, including 51 container ships. By comparison: in 2020, there were a total of 13 newbuildings. ■

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## ABEKING & RASMUSSEN

### 120 m yacht and much more ...

As usual in the business of yacht building, many details have not been officially disclosed. But even without knowing all details, the order for a 120 m-yacht can be described as a great success for Abeking & Rasmussen. For the Lemwerder-based shipyard, it is the largest yacht order in the company's almost 125-year history. In addition, work is currently in progress on a 118 m yacht.

However, the yacht business was not the only one that brought new orders for A&R last year. In addition, to the order for three 90 m LNG-powered multipurpose vessels for the German government, A&R also received an order for two 62 m minehunting boats from the Indonesian government. There was also new naval business from other European countries. For example, the Swedish company Saab has secured an order for the modernisation of German frigates. Abeking & Rasmussen is also to profit from this; the shipyard is to become the main contractor for the shipbuilding



© Abeking & Rasmussen

work. A shock-resistant measuring pontoon named »Schönhagen« was also recently built and delivered to the German navy.

In addition to the newbuilding orders, there are also maintenance orders at the subsidiary A&R Services, with nine projects already processed in 2021 alone.

## MEYER WERFT

### Flexibility in Papenburg



© Meyer Werft

Meyer Werft recently attracted a lot of attention. At the Monaco Yacht Show, the company announced its entry into the yacht market. The mega yacht concept »ONE 50« was presented, powered entirely by fuel cells and bat-

teries. The shipbuilding group, which has been hit hard by the corona-related slump in the cruise markets, has developed extensive measures to secure employment and limit job losses as much as possible. These include, among other things, the expansion of the portfolio to include smaller ships and new ship types.

At the end of July, Meyer Werft agreed on a memorandum of understanding for the construction of a flat ship, the »Njord« (81,000 GT), which in addition to LNG propulsion, will also have a hybrid battery system and will have oceanographic research facilities on board. In November, construction began on the »Silver Nova«, which will have the world's largest fuel cell installation according to the shipyard. In spring, the Japanese shipping company NYK ordered a 229 m long cruise ship with almost 52,000 GT.

Meanwhile, the »well-known« cruise business continues. Last year, the »Odyssey of the Seas« (169,000 GT) and »AIDAcosma« (183,000 GT) were delivered. This year the deliveries of the »Disney Wish« for Disney Cruises and »Arviva« for the shipping company P&O Cruises are on the agenda.





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FSG

## New order for LNG ferry from Australia

Flensburger Schiffbau-Gesellschaft has received a second newbuilding order after its relaunch: the Australian SeaRoad has ordered a RoRo ferry with LNG propulsion. The 100 mill. € ship will be 210 m long and will have 3,792 lane metres and additional space for 100 vehicles. Delivery to SeaRoad is scheduled for the fourth quarter of 2023. The new ferry will be specially designed to carry heavy cargo with a unit weight of up to 100 t. It will also use gas (LNG) as fuel. The Commonwealth Bank of Australia is the financing partner for the project.

SeaRoad has been a customer of FSG in the past. The first RoRo ferry was the »SeaRoad Mersey II« in 2016, and the Flensburg-built »Liekut« has also been sailing under the SeaRoad flag for three years since April 2021 as part of a charter agreement. The RoRo ferry, now on order, will operate on the Bass Strait between Devonport on Tasmania and Melbourne in the state of Victoria on the Australian mainland.

»We are very pleased with the performance of the FSG-built vessels, and we look forward to continuing our successful relationship,« said Chas Kelly, SeaRoad's Executive Chairman. »This order proves that the shipyard has succeeded in relaunching itself,« says Philipp Maracke, CEO of FSG.

With 350 shipyard employees, FSG had been taken over from insolvency by the Tennor Holding of German venture investor Lars Windhorst in autumn 2020. The first new construction of a RoRo ferry was also commissioned by a Tennor company a short time later. Hopes that the »Honfleur«, which was cancelled by Brittany Ferries, could be completed were dashed. A positive signal, however, was the takeover of the Nobiskrug shipyard in Rendsburg, which had also slipped into insolvency. For the future, Maracke wants to increase its efforts to win orders from the marine (FSG) and yacht (Nobiskrug) markets.



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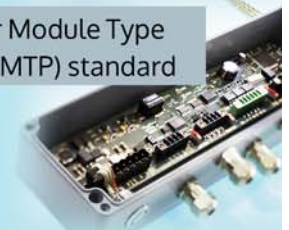
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## LÜRSSSEN

## Yachts and naval vessels under construction

HANSA's award-winning mega yacht »Nord« is just one of the Lürssen Group's projects. Especially in the yacht sector, there are several innovations with fuel cells (see pages 36ff). In addition to further yachts and – due to problems with previous contractors – delayed delivery of the sailing training vessel »Gorch Fock«, the naval business was high on the group's agenda. It is being spun off from the rest of the company into the new Naval Vessels Lürssen (NVL) company to strengthen its competitiveness. One highlight was the award of a contract by the German government for two new naval tankers. The 170 m long double-hull tankers are scheduled for delivery from 2024. The hulls will be built at Neptun Werft. The contract, awarded after a lengthy selection process, is worth a total of 914 mill. €. Lürssen had previously been awarded the contract to build three new fleet service boats for electronic reconnaissance. They are expected to be available from 2027 and will cost around 2 bn €, including all services.



© Lürssen

## FERUS SMIT

## Eye-catcher in the Northwest

The Ferus Smit shipyard in Leer, East Frisia, which belongs to a Dutch company, has once again attracted attention in 2021 with impressive cross-launches and the construction of inno-



© Ferus Smit

vative vessels. Special tankers have been and are being built for the Scandinavian shipping group Erik Thun. They are developed according to the NAABSA design, meaning »Not Always Afloat But Safely Aground«. The tankers are specially designed for shallow and tidal harbours and can also dry out in port without major problems.

The »Thun Britain« was recently launched, the second ship of a two-ship series to be used for a long-term contract with the Geos Group. At 79.9 m long and 15 m wide, the product tankers have a deadweight capacity of 4,250 t and a hold capacity of 4,800 m<sup>3</sup>.

In addition, a series of dual-fuel tankers was completed, which can also be powered by LNG. The »Thun Empower« is the fourth ship of the so-called »E-class«. With a length of 115 m and a width of 15.8 m, »Thun Empower« has a draft of 6.9 m. The ship with a deadweight tonnage of 7,999 t and a tank capacity of 9,350 m<sup>3</sup> is given the Swedish-Finnish ice class 1A.





© Tamsen Maritim

## TAMSEN MARITIM

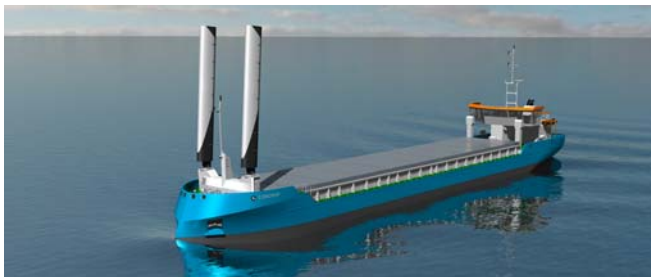
## Patrol boats for customs

The Rostock shipyard Tamsen Maritim is building two new patrol boats for the German customs. The 23 m long aluminium vessels were completely redesigned together with HB Hunte Engineering and developed using 3D CAD. The special feature: with a draught of only 1.20 m, the patrol boats can be accelerated to more than 20 kn. They are designed for use in the Wadden Sea and can fall dry. The two MAN engines each have an output of 882 kW (2,372 hp) and comply with the Tier III emission standard. The deckhouse is elastically mounted and thus largely vibration-free.

The lifeboat »Erich Koschubs« also marked the end of a series of newbuildings for the Deutsche Gesellschaft zur Rettung Schiffbrüchiger (DGzRS) for Tamsen Maritim. The 10.1 m long and 3.61 m wide boat with a draught of 0.96 m is stationed in Travemünde. It sails from there at a maximum speed of 18 kn.

## FOSEN YARD EMDEN

## Mini-bulkers on the horizon



© Fosen Yard Emden

Fosen Yard Emden has sent the first half-ring for a deep-sea salmon farm to Norway. There, two halves will be assembled into a salmon farm. After many eventful years, the shipyard in Emden started operations on the former Nordseewerke site with this rather unusual order placed by Norway Royal Salmon. The farm's project is a joint venture between the two Fosen sites in Rissa on the Trondheimsfjord and in Emden. Each half weighs about 1,600 t. The farms are prototypes designed for use outside the fjords in Arctic waters. According to the shipyard, the project is »unique in Europe in its type and size«.

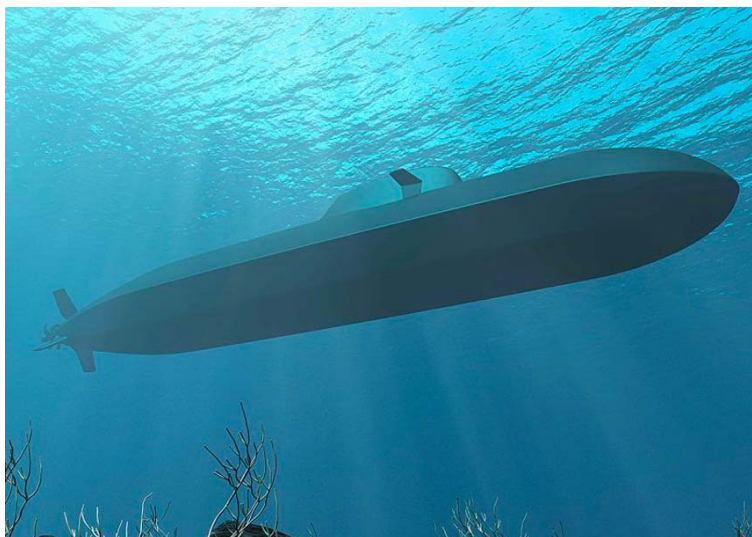
At the end of 2021, it was also announced that Fosen Yard Emden was in negotiations for a series of 88 m mini-bulkers. However, a final decision on the order had not yet been made by the time this magazine went to press.

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## THYSSENKRUPP MARINE SYSTEMS

### New chapter in submarine construction



© ThyssenKrupp Marine Systems

For the shipbuilding group TKMS, in addition to the completion of corvette and frigate orders, there was cause for joy above all from the submarine segment. While working together with Fincantieri on a series for the Italian navy, a major order for Norway was landed: With the construction of six 73-m-long Tyo U212CD submarines for Norway and Germany, TKMS won the most significant order in the company's history. The order volume is around €5.5 billion. Industrial cooperation between Germany and Norway is a cornerstone of the U212CD project. The first submarine is to be built from 2023 and delivered to the Norwegian Navy in 2029. The two boats for the German Navy, No. 3 and No. 6 in the series, will enter service in 2032 and 2034.

## NOBISKRUG

### Re-start in the yacht business

An important signal after the restart under the new (FSG) flag: The Nobiskrug shipyard in Rendsburg can now finish building a mega-yacht, which was already in the order book before the insolvency and the takeover by the Flensburg shipyard FSG.

With the signing of a contract for a major order, »a significant milestone has been reached within the repositioning of Nobiskrug Werft in the context of the takeover by Flensburger Schiffbau-Gesellschaft«, the company announced. The newbuilding in question is now entering the final outfitting phase, which, in addition to the coating work on the hull, includes the interior fittings in particular. The yacht is the 795 project, which was initially put on hold after the insolvency. Since then, extensive negotiations with the client have been ongoing.



© Nobiskrug

Two months earlier, the Rendsburg shipyard had landed the first yacht order since the takeover by investor Lars Windhorst: an extensive refit for a 120m yacht, in which all the company's shipbuilding departments are to be involved. In parallel, »demanding maintenance work« will be carried out. The work, which will take several months, will take place in a temperature-controlled dry dock.





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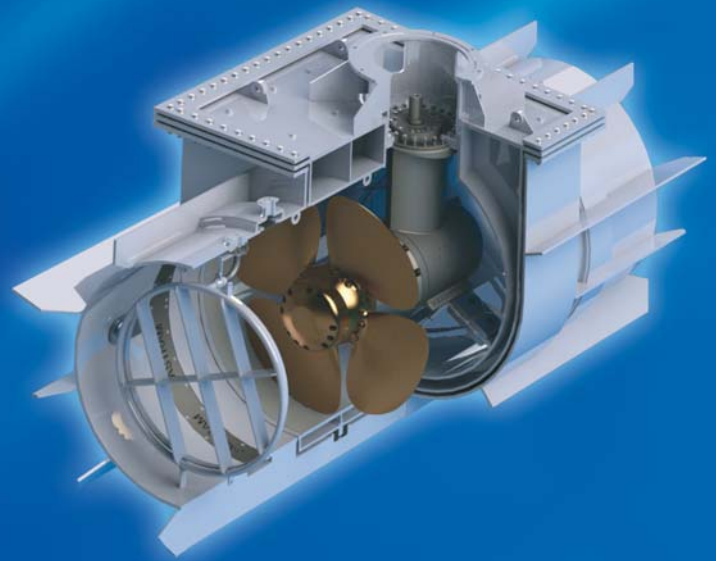
## FR. FASSMER

### Wide range of projects

The shipyard Fr. Fassmer, located in Berne on the river Weser, has an interesting collection of projects in the works. After the commissioning of the survey, wreck search and research vessel »Atair« in spring and additional units for the German Maritime Search and Rescue Service (DGzRS), as well as the delivery of the first units of a newly developed lifeboat, Fassmer is currently working on the »Uthörn«, among others. The keel of the new research vessel for the Alfred Wegener Institute has been laid. The 35-m-long new building will be used CO<sub>2</sub>-free in the North and Baltic Seas with a methanol drive. Two measuring boats for the German navy are also to be delivered next year; the order was obtained in July 2021. The new vessels will be 50 m long and 11 m wide, slightly larger than their predecessors. The costs are estimated at around 95 mill. €. The new measuring boats are to support, among other things, the securing and recovery of torpedoes during trials, the escorting of submarines during shallow water trials, the deployment of autonomous underwater vehicles, as well as diving missions in the context of defence-related examinations of diving devices and equipment.

Together with the propulsion specialist Torqeedo, Fassmer aims to enter a new market. The two companies have developed a fully electric ferry concept for public transport – the CIT-E Ferry. Torqeedo's »Deep Blue« drive system is at the heart of it. Two steerable rudder propellers deliver 100 kW (peak power 130 kW) and can be turned up to 360°, making the CIT-E Ferry easy to manoeuvre even in the narrowest urban waterways. Deep Blue lithium-ion batteries with a battery capacity of 80 kWh-1 MWh power the propulsion system.

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## GERMAN NAVAL YARDS

## Corvettes and emergency ships under construction and conversion

In cooperation with the Lürssen Group, German Naval Yards is working on a corvette newbuilding programme for the German Navy. In addition to Lürssen and GNYK, ThyssenKrupp Marine Systems is also a member of the joint venture for the boats to be delivered from 2022. The last three of the five foreships for the new corvette series will be built on the Kiel Fjord under the leadership of the Lürssen Group. The construction contract awarded by the Federal Office of Bundeswehr Equipment, Information Technology and In-Service Support (BAAINBw) on 12 September 2017, comprises five additional 130-class corvettes. GNYK is also converting two anchor handling tugs (AHTS), previously in service with Siem Offshore, into the most powerful emergency towing and recovery tugs in the world for the French Navy. Commissioning is scheduled for the second quarter of 2022.



© German Naval Yards

## LLOYD-WERFT &amp; MV WERFTEN

## Super-Yacht »Solaris« delivered



© Eckardt

Lloyd-Werft in Bremerhaven has completed the 139 m long mega-yacht »Solaris«. According to the shipyard, this was a sophisticated project with several innovations. These include glass areas of more than 2,000 m<sup>2</sup> with the largest panes ever installed and the largest twin Azipod system (9 MW) ever installed on a private vessel, supplied by ABB. Powered by eight MTU engines with a total output of 14,000 kW, the newbuilding will reach a speed of 18 kn. There will be 48 cabins for up to 36 passengers and 60 crew members onboard. The »Solaris« was, for the time being, the last newbuilding project of the shipyard founded in 1857.

*Additional note: The insolvency of Lloyd-Werft and the MV Werften in Wismar, Warnemünde and Stralsund, which also belong to the Asian tourism group Genting, was only a few days ago when this issue went to press. However, the insolvency administrators had already intensively pursued the search for a new owner to continue the operations*

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## NEPTUN SHIPYARD

### Yacht hull provides employment

For Abeking & Rasmussen's yacht project, the Rostock-based Neptun Werft is building the 120-metre-long Kasko. With the delivery of two river cruise ships to the US customer Viking River Cruises, Neptun Werft had already completed its last two newbuilding orders in March. After that, engine room sections for Meyer Werft in Papenburg, to which Neptun Werft belongs, were still on the order book.

At the end of 2021, the hull order closed a gap in capacity utilisation that otherwise threatened this year. The hull will be welded in Rostock by 2023, followed by the completion and outfitting at A&R in Lemwerder. According to the Rostock-based company, this cooperation with A&R is independent of Meyer Werft's planned entry into the construction of megayachts.

In July, Neptun Werft had already taken a big step in securing jobs. As a partner of Lürssen Werft, the shipbuilding company is taking on essential tasks in designing and constructing two new naval tankers. In addition, a total of seven engine room modules are being built for the Meyer Group shipyards.

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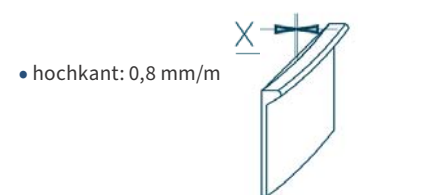
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# Deliveries & orders

Yard-No	Type	Name	Owner	dwt / t / Pax	GT	Loa (m)	Bmld (m)	Draft (m)	kW / HP	Engine Type	kn / km/h	Delivery
Abeking & Rasmussen Schiffs- und Yachtwerft, Lemwerder   <a href="http://www.abeking.com">www.abeking.com</a>												
6513	SVK measure ponton		BAAINbW			22.60						2021
6507	Yacht					118.20						2022
6508	Mine hunting vessel		Republic of Indonesia			62.00						2023
6509	Mine hunting vessel		Republic of Indonesia			62.00						2023
6510	Multipurpose		Federal Waterways and Shipping Administration			> 90.00						2023
6511	Multipurpose		Federal Waterways and Shipping Administration			> 90.00						2024
6512	Multipurpose		Federal Waterways and Shipping Administration			> 90.00						2025
6514	Yacht				5.000	120.00						2025
Schiffswerft Hermann Barthel GmbH, Derben   E-Mail: <a href="mailto:info@barthel-werft.de">info@barthel-werft.de</a>   <a href="http://www.barthel-werft.de">www.barthel-werft.de</a>												
201	Work boat	Driever	Federal Waterways and Shipping Administration			21.00	6.0	1.20	2 x 221	Volvo Penta D9	16.0	2021
203	Push boat	Büffel	Federal Waterways and Shipping Administration			14.00	7.24	1.45	2 x 279	Iveco	15.0	2020
206	Pram	Hilter	Federal Waterways and Shipping Administration			36.50	6.69	0.80	2 x 280	Iveco	13.5	2021
207	Police boat	Biber	Police Sachsen-Anhalt			13.00	3.60	0.80	282	MAN	40.0	2021
208	Police boat	Kranich				13.00	3.60	0.80	282	MAN	40.0	2021
209	Training ship		DGzRS			22.00	6.16	1.60		Cummins	21.0	2021
210	Push boat	Elektra	BEHALA			20.0	8.20	1.25		Brennstoffzelle	12.0	2021
211	Police boat		Police Sachsen-Anhalt			13.00	3.60	0.80	537	MAN	40.0	2021
Schiffswerft Bolle GmbH, Derben   E-Mail: <a href="mailto:info@bolle.de">info@bolle.de</a>   <a href="http://www.schiffswerft-bolle.de">www.schiffswerft-bolle.de</a>												
218	Pram	4329	WSA Meppen									2021
219	Pram	DP 4331	WSA			18.00	6.50					8/2021
221	Pram	DP 4332	WSA			18.00	6.50					8/2021
223	Electr. catamaran	Marie D'Bohemia	PragueBoats			40.00	9.60	1.10	2 x 75	Electric		8/2021
224	Pram	OP 4336	WSA			28.00	5.70					8/2021
225	Pram	OP 4337	WSA			28.00	5.70					4/2021
226	Work boat		Senat Berlin			14.00	4.35	1.00		Electric		05/2022
Theodor Buschmann GmbH & Co. KG, Hamburg   <a href="http://www.theodor-buschmann.com">www.theodor-buschmann.com</a>												
no current orders												
Erlenbacher Schiffswerft Maschinen und Stahlbau GmbH   E-Mail: <a href="mailto:Info@Erlenbacher-Schiffswerft.com">Info@Erlenbacher-Schiffswerft.com</a>   <a href="http://www.die-schiffswerft.com">www.die-schiffswerft.com</a>												
no current orders												
Fr. Fassmer GmbH & Co. KG, Berne/Motzen   <a href="http://www.fassmer.de">www.fassmer.de</a>												
7090	Rescue vessel	Felix Sand	DGzRS			28.00			2x1440	MTU 2000 M72	24.00	01/2021
7100	Rescue vessel	Nis Randers	DGzRS			28.00			2x1440	MTU 2000 M72	24.00	09/2021
8090	Multi Purpose Vessel	MPV70	ASTINAVE E.P.		1,850	80.60	13.00	3.90				2022
1980	Research vessel	Uthörn	Alfred-Wegener-Institut			36.00	9.00	2.20	2x200	Methanol	10.00	2022
8400	Patrol vessel		German Federal Police			86.00	13.40	6.60	2x4,080	2 x Wärtsilä 12V26 + 2 x 600 kw electric	21.00	2023
8010	Multi Purpose Vessel		German Navy			50.00	11.00		2x770	diesel elektric	14.00	2023



# Deliveries & orders

Yard-No	Type	Name	Owner	dwt / t / Pax	GT	Loa (m)	Bmld (m)	Draft (m)	kW / HP	Engine Type	kn / km/h	Delivery
8020	Multi Purpose Vessel		German Navy			50.00	11.00		2x770	diesel elektric	14.00	2023
8050	Multi Purpose Vessel		Customs			65.00			5.968	LNG	23,20	2024
8160	Research vessel	Meteor IV	BMBF + BAW		10,000	125.00			. 6.800	diesel elektric		2026
* Material package ** in cooperation with Meyer Werft												
Feltz-Werft GmbH   E-Mail: <a href="mailto:info@feltz-werft.de">info@feltz-werft.de</a>   <a href="http://www.feltz-werft.de">www.feltz-werft.de</a>												
no current orders												
Ferus Smit Leer GmbH, Leer   <a href="http://www.ferus-smit.nl">www.ferus-smit.nl</a>												
441	Multipurpose*	Arklow Arrow	Arklow Shipping		7,160	119.50	14.99	9.70	2,000			2021
451	Tanker	Thun Equality	Erik Thun Group		7,999	115.00	15.87	6.95	2,999	Wärtsilä 6L34 FD		2021
452	Tanker	Thun Empower	Erik Thun Group		7,999	115.00	15.87	6.95	2,999	Wärtsilä 6L34 FD		11/2021
462	Tanker	Thun Britain	Erik Thun Group		4,250	80.00	14.99	5.50	1,950			Q2/2022
	Dry cargo vessel		Erik Thun Group			100.00						2022
	Multipurpose**		Symphony Shipping		12,500		18.00		3,300			2022-23
	Multipurpose**		Symphony Shipping		12,500		180.0		3,300			2022-23
* built at Westerbroek ** in cooperation with Westerbroek												
Schiffswerft Fischer   <a href="mailto:schiffswerft-fischer@t-online.de">schiffswerft-fischer@t-online.de</a>   <a href="http://www.schiffswerft-fischer.de">www.schiffswerft-fischer.de</a>												
	Deck pram		WSV	100		26.00	5.10					Q1/2022
Flensburger Schiffbau-Gesellschaft mbH & Co. KG.   <a href="http://www.fsg-ship.de">www.fsg-ship.de</a>												
7820	RoRo*		IVP Ship Invest	32,770	11,820	210.00	26.00	6.80	2 x 9.600	2 x MAN 8L48/60CR	21.30	Q2/2022
784	RoRo		SeaRoad	12,017	43,080	210.00	29,30	6,35	2 x 10350 kW	9L46DF	22,50	11/2023
* option of second vessels												
Fosen Yard Emden   <a href="http://www.nordseewerke.com">www.nordseewerke.com</a>												
Kasko	RoRo		Schiffswerft Diedrich			53.00	12.20					2021
	Half-ring for salmon farm		Norway Royal Salmon									2021
	Half-ring for salmon farm		Half-ring for salmon farm									2022
German Naval Yards GmbH, Kiel   <a href="http://www.germannaval.com">www.germannaval.com</a>												
	Corvette SA'AR 6 *	INS Oz	Israel Navy		2000	92.00	13.00					05/21
		INS Atzmaut	Israel Navy		2000	92.00	13.00					06/21
		INS Nitz-achon	Israel Navy		2000	92.00	13.00					07/21
	Corvette K130**	FGS Karlsruhe	German Navy		1840	89.00	13.00	4,20				08/21
		FGS Augsburg	German Navy		1840	89.00	13.00	4,20				04/22
		FGS Lübeck	German Navy		1840	89.00	13.00	4,20				01/23
*subcontract with tkMS, **together with NVL and tkMS (GNYK: foreships)												

# Deliveries & orders

Yard-No	Type	Name	Owner	dwt / t / Pax	GT	Loa (m)	Bmld (m)	Draft (m)	kW / HP	Engine Type	kn / km/h	Delivery
Hitzler Werft GmbH, Lauenburg   E-Mail: info@hitzler-werft.de   www.hitzler-werft.de												
834	Levelling vessel		Flotte Hamburg			22.00	8.00	2.10	2x500	2 x Cat 18 C	19.00	2022
835	Crew Transfer Vessel		Wallaby Boats	15		18.00	8.00	2,70		Volvo	30.00	2022
Kuhnle Werft GmbH, Rechlin   E-Mail: werft@kuhnle-werft.de   www.kuhnle-werft.de												
F1180-07	Passenger boat					11.80	3.80	0.50	11.03	Outboard	10.0	Q1 / 2021
Kiebitzberg Schiffswerft GmbH & Co. KG   E-Mail: info@kiebitzberg.de   www.kiebitzberg.de												
Kötter Werft GmbH   E-Mail: info@koetter-werft.de   www.koetter-werft.de												
	Work boat*	Orca		100		19.50	5.20		1 x 132 +117/61	Diesel electric Verhaar-Omega) + 2 Dolpower		Q3/2021
* construction by Schiffstechnik Buchloh												
Lloyd Werft Bremerhaven GmbH   www.lloydwerft.com												
	Yacht	Solaris			11,011	140.00			14,000	MTU	18.00	05/2021
Lloyd Werft is owned by Genting Group												
Lübecker Yacht Trave Schiff GmbH   E-Mail: info@luebeckyacht.de   www.luebeckyacht.de												
256	Work Boat	Trave Patrol 8	LLUR			8.00	3.50					2021
257	Work Boat	LY 6.0 work vessel	LKN			6.00	2.50					2021
258	Ponton		private			13.50	4.50					2022
259	Ponton		private			13.50	4.50					2022
Fr. Lürssen Group   www.luerssen.com												
Blohm + Voss Shipyards. Hamburg   www.blohmvooss.com												
ARGE	Frigate F 125*	F 224 Sachsen-Anhalt	German Navy			149.50	18.80	5.00	31,600	MTU 20V4000 + MTU GE LM 2500 (29,000 kW)	26.00	2021
ARGE	Frigate F 125*	F 225 Rheinland-Pfalz	German Navy			149.50	18.80	5.00	31,600	MTU 20V4000 + MTU GE LM 2500 (29,000 kW)	26.00	2022
* in cooperation with TKMS and German Naval Yards												
Fr. Lürssen Werft GmbH & Co. KG. Bremen-Vegesack												
	Yacht	Nord	Alexei Mordashov			141.60	19.50			2 x MTU	20.00	2021
13800	Yacht	Moon Sand			835	55.50	10.20					2021
	Yacht*	Cap d'Ail				62.00						2022
	Expedition yacht	Icecap			6,500	107.00						2022
	Yacht	Jag				125.00	17.80	4.80				2023
	Yacht	Blue			15,320	158.00	21.00					2023
	Yacht	Luminance				145.00	20.00					2023
	Yacht**	Opera			11,999	146.00	20.00					2024
	Yacht	JassJ				103.00						2025
	5 x Corvette K130***		German Navy									2022-25
	Multipurpose****		Bulgarian Navy									2025
	Multipurpose****		Bulgarian Navy									2026
* former Project 794 at Nobiskrug   ** replacement for the burned »Sassi«   *** in cooperation with TKMS and German Naval Yards   **** to be built at MTG Dolphin in Varna. Bulgaria												



# Deliveries & orders

Yard-No	Type	Name	Owner	dwt / t / Pax	GT	Loa (m)	Bmld (m)	Draft (m)	kW / HP	Engine Type	kn / km/h	Delivery
<b>Lürssen-Kröger Werft GmbH &amp; Co. KG. Schacht-Audorf</b>												
	Yacht	AHPO			5,000	116.00	17.80					2021
	Yacht	Project 1601				90.00						2022
	Yacht	Kali			4,850	110.00						2022
<b>Peene-Werft, Wolgast</b>												
No current orders known												
<b>Lux-Werft und Schifffahrt GmbH   E-Mail: info@lux-werft.de   www.lux-werft.de</b>												
222	Ferry	Stad Deventer e	Thuishaven Veerdiensten	80 PAX		16.00	5.20	1.00	E 1 x 60	electric		1/2021
224	Electric ferry	Berg	Bayerische Seenschifffahrt	300 PAX		35.00	8.20	1.25	2 x 200	electric	20.00	3/2021
225	Passenger boat	Seestern	Poschke Fahrgastschifffahrt	250 PAX		36.30	8.00	1.20	2 x 182	Volvo Penta		6/2021
<b>Werftgruppe Meyer   www.meyerwerft.de</b>												
<b>Meyer Werft, Papenburg</b>												
713	Cruise Vessel	Odyssey of the Seas	Royal Caribbean Group	4280	169,000	345.00	41.40	8.30		MGO		2021
709	Cruise Vessel	AIDAcosma	AIDA Cruises	5200	183,000					LNG		2021
705	Cruise Vessel	Disney Wish	Disney Cruise Line	2500	140,000	340.00	39.00	8.30		LNG		2022
716	Cruise Vessel	ARVIA	P&O Cruises	5200	185,000	344.50	42.00	8.60	61.760	LNG	21.50	2022
719	Cruise Vessel	Silver Nova	Silversea	728	54,700	244.50	29.60	6.60	25.440	LNG	18.70	2023
717	Cruise Vessel	Carnival Jubilee	Carnival Cruise Line	5300	182,800	344.50	42.00	8.60	61.760	LNG	17.00	2023
718	Cruise Vessel		Disney Cruise Line	2500	140,000	340.00	39.00	8.30		LNG		2024
720	Cruise Vessel		Silversea	728	54,700	244.50	29.60	6.60	25.440	LNG	18.70	2024
706	Cruise Vessel		Disney Cruise Line	2500	140,000	340.00	39.00	8.30		LNG		2025
721	Cruise Vessel		NYK Cruises	744	51,950	228.90	29.80	6.70	27.840	LNG	18.50	2025
	Apartment Vessel*	MY Njord	Ocean Residences		84,800	289.30	33.50			LNG	21.00	2025
	Research vessel**	Meteor IV	BMBF + BAW		10,000	125.00			ca. 6.800	diesel elektric		2026
* LOI signed ** in cooperation with Fassmer Werft												
<b>Neptun Werft GmbH &amp; Co. KG   www.neptunwerft.de</b>												
584	River Cruise Vessel	Viking Gymir	Viking River Cruises	180		134.90	11.45	1.60	4 x 360	2 x CAT32 ACERT 2 x CAT18 ACERT		2021
585	River Cruise Vessel	Viking Egdir	Viking River Cruises	180		134.90	11.45	1.60	4 x 360	2 x CAT32 ACERT 2 x CAT18 ACERT		2021
tba	Tanker		Federal Ministry of Defence									2025
tba	Tanker		Federal Ministry of Defence									2026
<b>Meyer Turku Shipyard Oy   www.meyerturku.com</b>												
1395	Cruise ship	Costa Toscana	Costa Crociere	6.600 PAX	183,200	337.00	42.00	8.80			17.00	2021
		Carnival Celebration	Carnival Cruise Line									2022
		Icon of the Seas	Royal Caribbean Grou									2023
		tbd	Royal Caribbean Group									2025
		tbd	Royal Caribbean Group									2026
1404	Cruise ship	Mein Schiff 7	TUI Deutschland	2.900 PAX	111,500	315.70	35.80	7.90	45.2	4 x Wärtsilä		2024

# Deliveries & orders

Yard-No	Type	Name	Owner	dwt / t / Pax	GT	Loa (m)	Bmld (m)	Draft (m)	kW / HP	Engine Type	kn / km/h	Delivery
MV Werften   <a href="http://www.mv-werften.com">www.mv-werften.com</a>												
MV Werften Rostock-Warnemünde GmbH												
MV Werften Wismar GmbH												
MV Werften Stralsund GmbH												
	Expedition yacht	Crystal Endeavor	Crystal Yacht Expedition		20.000							2021
125	Cruise ship	Global Dream	Dream Cruises	5.000+ PAX	201.000	340.000	45.00	9.20	96.000	MAN		tba
126	Cruise ship	Global Two	Dream Cruises	5.000+ PAX	201.000	340.000	45.00	9.20	96.000	MAN		tba
MV Werften as well as Genting Group filed for insolvency   projects under review												
Neckar Bootsbau Ebert GmbH   E-Mail: <a href="mailto:info@nebo.de">info@nebo.de</a>   <a href="http://www.nebo.de">www.nebo.de</a>												
2085	Police boat	WSP 1	WSP St. Goar			15.60	3.75	0.96	2 x 412	2 x MAN D2676 LE432		2021
2020	Fire fighting boat	HLB Bingen	Innenministerium Rheinland-Pfalz			15.00	5.10	0.80	2 x 588	2 x MAN D2676LE423		Q1/2022
2090	Police boat	SPB 6	Police Baden-Württemberg			17.40	4.10	1.00	2 x 412	2 x MAN D2676 LE432		Q1/2022
2100	Fire fighting boat		Hansestadt Lübeck			19.60	6.40	0.80	2 x 588	2 x MAN D2676LE423	40.00	Q1/2022
	Fire fighting boat	Chiemsee	Landkreis Traunstein	10.00		13.00	13.75		2 x 242	FPT N60-400	25	Q4/2022
Neue Oderwerft GmbH   E-Mail: <a href="mailto:e.ruchatz@neue-oderwerft.de">e.ruchatz@neue-oderwerft.de</a>   <a href="http://www.neue-oderwerft.de">www.neue-oderwerft.de</a>												
No current orders known												
Neue Ruhrorter Schiffswerft GmbH   E-Mail: <a href="mailto:info@nrsw.de">info@nrsw.de</a>   <a href="http://www.nrsw.de">www.nrsw.de</a>												
865	Push lighter	Veerhaven 112	ThyssenKrupp Veerhaven			70.50	11.48					Q1/2021
866	Push lighter	Veerhaven 113	ThyssenKrupp Veerhaven			70.50	11.48					Q2/2021
867	Push lighter	Veerhaven 114	ThyssenKrupp Veerhaven			70.50	11.48					Q3/2021
868	Push lighter	Veerhaven 114	ThyssenKrupp Veerhaven			70.50	11.48					Q1/2022
869	Push lighter	Veerhaven 115	ThyssenKrupp Veerhaven			70.50	11.48					Q1/2022
Nobiskrug GmbH   <a href="http://www.nobiskrug.com">www.nobiskrug.com</a>												
793	Yacht	Black Shark	Imperial Yachts	2,080		77.10	12.75					2023
794*	Yacht					62.00						2022
797**	Yacht					80.00						2023
* will be finished at Lürssen as Cap d'Ail   ** tbc after insolvency												
Ostseestaal (Ampereship) GmbH & Co. KG   E-Mail: <a href="mailto:ingo.schillinger@ampereship.com">ingo.schillinger@ampereship.com</a>   <a href="http://www.ostseestaal.com">www.ostseestaal.com</a> / <a href="http://www.ampereship.com">www.ampereship.com</a>												
11	Passenger boat		Stadt Rostock	80 PAX		21.91	6.60	1.05	2 x 55	2 x Kräutler	14.0	Q3/2021
12	Passenger boat		Oderhaff Reederei Peters	20 PAX		14.65	4.50	0.90	1 x 60	Torqueedo	14.0	Q3/2021
13	Passenger boat		Züricher Schifffahrtsgesellschaft	62 PAX		22.50	3.80	0.85	2 x 60		16.0	Q1/2022
14	Passenger boat		Züricher Schifffahrtsgesellschaft	62 PAX		22.50	3.80	0.85	2 x 60		16.0	Q3/2022
15	Passenger boat		Züricher Schifffahrtsgesellschaft	62 PAX		22.50	3.80	0.85	2 x 60		16.0	Q3/2022
	Passenger boat*		Bodensee-Schiffsbetriebe							Electric-solar		Q4/2022
* with option for a second boat												



# Deliveries & orders

Yard-No	Type	Name	Owner	dwt / t / Pax	GT	Loa (m)	Bmld (m)	Draft (m)	kW / HP	Engine Type	kn / km/h	Delivery
<b>Pella Sietas GmbH   www.pellasietas.com</b>												
	Hopper dredger		WSA Cuxhaven			132.00	23.40	6.90	14,000	Diesel-electric	13.00	2021
	Ferry*		Stadtwerke Konstanz	700 PAX						LNG		2021
	Double-end ferry**		Norden Frisia	325 t		74.30	13.40	1.75		Voith Schneider Propeller		Q4/2021
1320	Ice breaking vessel		Rosmorport	14,800		119.80	27.50	8.50			17.00	2023
* sections to Fusach, Austria, final outfitting in Konstanz-Staad, ** order cancelled / Pella Sietas filed for insolvency   projects under review												
<b>Peters Werft GmbH   www.peters-werft.de</b>												
* Currently no projects announced.   active in repair and refit												
<b>SET Schiffbau und Entwicklungsgesellschaft Tangermünde mbH   E-Mail: mail@set-schiffbau.de   www.set-schiffbau.de</b>												
203	Dredger	Wesergrund	Generaldirektion Wasserstraßen und Schifffahrt FMN			47.05	10.50	1.30	2 x 323	Diesel electric Ramme Hydro-Armor (Pods)	7.00	03/2022
205	Work Boat	Arbeitsschiff HGM	Staatliche Rhein-Neckar-Hafengesellschaft Mannheim mbH						2 x 285	Diesel electric Baumüller B 260	11.00	07/2022
206	Push Boat with 2 folding barges	Düsseldorf	Bezirksregierung Düsseldorf						1 x 200	Volvo Penta D4-270A-G	7.00	02/2022
207	Work Boat	STS 1	Tamsen Maritim		ca 65				1 x 368	MAN D2676LE497	10.00	11/2022
208	Work Boat	STS 2	Tamsen Maritim		ca 65				1 x 368	MAN D2676LE497	10.00	03/2023
209	Work Boat	AB Bodensee 1	Regierungspräsidium Tübingen / Baden-Württemberg							Hydraulic paddle wheel drive	4.30	05/2023
210	Work Boat	AB Bodensee 2	Regierungspräsidium Tübingen / Baden-Württemberg							Hydraulic paddle wheel drive	4.30	05/2023
211	Work Boat	AB Bodensee 3	Regierungspräsidium Tübingen / Baden-Württemberg							Hydraulic paddle wheel drive	4.30	05/2023
<b>Siemer Jachtservice Hunte-Ems GmbH   E-Mail: info@siemer-jachtservice.de   www.siemer-jachtservice.de</b>												
	Patrol vessel*		Police Nordrhein-Westfalen			17.30	4.40					Q1/2021
	Patrol vessel*		Police Nordrhein-Westfalen			13.80	4.00	1.10	2 x 254	2 x FPT-Iveco N67 ENT		2022
* Kaskos von Yachtservice Benjamins												
<b>Stahlbau Müller   E-Mail: info@stahlbaumueller.de   www.stahlbaumueller.de</b>												
* Currently no projects announced												

 <p><b>Drews Marine GmbH</b> A HEINEN &amp; HOPMAN COMPANY</p>	<p>Ihr Partner rund um das perfekte Klima an Bord</p>	 <p><b>Drews Austria GmbH</b> A HEINEN &amp; HOPMAN COMPANY</p>
<p><b>Drews Marine GmbH</b> Billbrookdeich 151 D- 22113 Hamburg</p> <p>+49 (0)40 731 68 0 info@drewsmarine.com</p>	 <p><b>Klima   Kälte   Lüftung   Heizung</b> <b>Ersatzteile, Service und Wartung</b></p> <p><b>Innovative Luftreinigung</b> <b>u.a. UV-C Installation &amp; Nachrüstung</b></p>	<p><b>Drews Austria GmbH</b> Freudenauer Hafenstr. 24 AT-1020 Wien</p> <p>+43 (1) 720 13 09 info@drewsaustria.com</p>
<p>www.drewsmarine.com</p>		

# Deliveries & orders

Yard-No	Type	Name	Owner	dwt / t / Pax	GT	Loa (m)	Bmld (m)	Draft (m)	kW / HP	Engine Type	kn / km/h	Delivery
Stahlbau Nord   E-Mail: <a href="mailto:sbn@sbn-bhv.de">sbn@sbn-bhv.de</a>   <a href="http://sbn-bhv.de">sbn-bhv.de</a>												
	Frigate*	Type MEKO	Egyptian Navy			120.00					29.00	2024
	Frigate*	Type MEKO	Egyptian Navy			120.00					29.00	2024
	Frigate*	Type MEKO	Egyptian Navy			120.00					29.00	2024
* subcontract with Thyssenkrupp Marine Systems												
Tamsen Maritim GmbH   E-Mail: <a href="mailto:info@tamsen-maritim.de">info@tamsen-maritim.de</a>   <a href="http://www.tamsen-maritim.de">www.tamsen-maritim.de</a>												
TM 2001	Customs Vessel		Generalzolldirektor		92.00	23.00	6.30	1.20	1.764	MAN	20.00	2022
TM 2002	Customs Vessel		Generalzolldirektor		92.00	23.00	6.30	1.20	1.764	MAN	20.00	2022
TM 2101	SAR Vessel		DGzRS			10.10	3.60	0.95	279	Cummins QSB 6,7	19.00	2022
TM 7690	Work Boat		German Navy			20.00	5.50	1.50	376	MAN	10.00	2022
TM 7691	Work Boat		German Navy			20.00	5.50	1.50	376	MAN	10.00	2023
ThyssenKrupp Marine Systems GmbH   <a href="http://www.thyssenkrupp-marinesystems.com">www.thyssenkrupp-marinesystems.com</a>												
TKMS Kiel												
	Corvette**	INS Oz	Israeli Navy									2021
	Corvette**	INS Atzmaut	Israeli Navy		2,000	90.00						2021
	Corvette**	INS Nitzachon	Israeli Navy									2021
	Submarine	U 44	Egyptian Navy			62.00	6.25					2021
	Submarine	Drakon	Israeli Navy									2022
	Submarine	Invincible	Singapore Navy		2,000	72.00				diesel-electric + AIP		2022
	Submarine		Singapore Navy		2,000	72.00				diesel-electric + AIP		2022
	Submarine		Singapore Navy		2,000	72.00				diesel-electric + AIP		2024
	Submarine		Singapore Navy		2,000	72.00				diesel-electric + AIP		2024
	4 x Submarine*		Norwegian Navy									2026
	5 x Corvette K130***		German Navy									2022-25
	3 x Meko Frigate ****		Egyptian Navy		3,400	120.00					29.00	2024
	Equipment for 4 Corvettes*****		Brasilian Navy									2025-28
	2 x Submarine*****		Italian Navy									2027-29
	2 x Submarine	Type U212 CD	German Navy									2032+ 2034
	4 x Submarine	Type U212 CD	Norwegian Navy									2029 (first one)
* order is expected in summer 2021. Will be build in partnership with Norwegian companies. ** subcontract to German Naval Yards. *** in cooperation with Lürssen Group and German Naval Yards. **** Steel sections will be built at Bremerhavener Stahlbau Nord. ***** Tamandaré class in cooperation with Emgepron. Embraer. To be built in Itajai, Brazil. ***** main contract to Fincantieri												
TKMS Hamburg												
ARGE	Frigate F 125*	F 224 Sachsen-Anhalt	German Navy			149.50	18.80	5.00	31.60	MTU 20V4000 + MTU GE LM 2500 (29.00 kW)	26.00	2021
ARGE	Frigate F 125*	F 225 Rheinland-Pfalz	German Navy			149.50	18.80	5.00	31.60	MTU 20V4000 + MTU GE LM 2500 (29.00 kW)	26.00	Q1/2022
* Subcontract to B + V Shipyards; bow sections to be built by Lürssen												



## GEMAX

## Collaborative platform for maritime exports

German design companies, ship machinery manufacturers, equipment suppliers, shipyards and the German KfW-IPEX bank have teamed up to form the German Maritime Export Initiative. Providing a platform for both maritime equipment and long-term project financing for shipbuilding and offshore projects. Focused on shipowners and maritime contractors, GeMaX can offer favourable financing conditions and German ECA covering and sourcing reliable services and ship equipment through its members. The initiative is being promoted by the German Shipbuilding and Ocean Industries Association (VSM), which is responsible for marketing activities, project coordination and administration.

All in all, this offer is aimed to help shipowners and maritime contractors to combine solid and favourable project financing with German quality equipment and sophisticated engineering. This lifecycle approach is for shipowners looking to the full cost, not only the initial investment.



**Contact:** Zarko Knezevic (Project Leader GeMaX)  
[info@german-maritime-export.de](mailto:info@german-maritime-export.de)  
[www.german-maritime-export.de](http://www.german-maritime-export.de)

## CENTER OF MARITIME TECHNOLOGIES

## Extensive experience in coordinating large-scale RDI projects

Under the umbrella of German Shipbuilding and Ocean Industries Association (VSM), the Center of Maritime Technologies gGmbH (CMT) is a non-profit limited liability company. It is the service backbone of VSM for research and development and offers a broad service portfolio. As a research institution based in Hamburg, it currently employs a staff of 15 with an annual turnover of over one million euros.

The offered services cover the entire range of tasks in conducting research projects, from the identification of RDI research needs and the development of project ideas as well as the identification of suitable partnerships and cooperation opportunities, advice on funding programmes, cross-programme proposals, to administrative and technical project management. This offers interested parties an external research centre within the association, which enables them to participate in RDI or to complement the company's own RDI capacities.

CMT is a member of the German network for applied industrial research and is also involved in a wide variety of activities at a European level. It is a recognised research

centre that carries out its own technical research in strategic areas with a medium to long-term perspective and offers comprehensive experience, networks, and resources to support and advise on a wide range of projects. CMT's know-how comprises the following work focusses:

- Production technologies
- Lightweight structures and new materials
- Ship concepts and life cycle aspects for maritime applications
- Energy efficiency and alternative energy sources

CMT gGmbH is the direct successor organisation of Center of Maritime Technologies e.V., which has been involved in more than 60 publicly funded, mainly European research projects and about 50 privately funded research and development projects.

**Contact:** Center of Maritime Technologies gGmbH  
 Steinhöft 11 – 20459 Hamburg/ Germany  
 +49 40 69 20 876 0 – [info@cmt-net.org](mailto:info@cmt-net.org)

# SHIP OF THE YEAR

## *Lürssen's »Nord«*

Delivered: 2021

Length: 141.6 m

Beam: 19.5 m

max. Speed: 18 kn

GT: 10,154

Guests: 36



NORD



»SHIP OF THE YEAR« 1982 – 2021			
Year	Ship type	Name	Yard
1982	Polar research vessel	»Polarstern«	HDW/ WN
1983	Reefer vessel	»Helene Jacob«	Flender Werft
1984	Train ferry	»Railship I«	SSW
1985	Container vessel	»Norasia Susan«	HDW
1986	Cruise ship	»Homerik«	Meyer Werft
1987	Conversion cruise ship	»Queen Elizabeth II«	Lloyd Werft
1988	Container vessel	»President Truman«	HDW
1989	Yacht cruiser	»Seabourn Spirit«	SSW
1990	Mega yacht	»Lady Moura«	Blohm + Voss
1991	Mega yacht	»Eco«	Blohm + Voss
1992	Container vessel	»DSR Baltic«	Bremer Vulkan
1993	Baltic Sea ferry	»Silja Europa«	Meyer Werft
1994	Container vessel	»Norasia Fribourg«	HDW
1995	Cruise ship	»Century«	Meyer Werft
1996	Cruise ship	»Costa Victoria«	BV/ Lloyd Werft
1997	General cargo ship	»Cathrin Oldendorff«	FSG
1998	Cruise ship	»Superstar Leo«	Meyer Werft
1999	Reefer container ship	»Dole Chile«	HDW
2000	Fast cruise ship	»Olympic Voyager«	Blohm + Voss
2001	Cruise ship	»Radiance of the Seas«	Meyer Werft
2002	Frigate	»Sachsen«	Blohm + Voss
2003	Freight ferry	»Tor Magnolia«	FSG
2004	Navy research ship	»Planet«	Nordseewerke
2005	Cruise ship	»Pride of America«	Lloyd Werft
2006	ConRo ferry	»Pauline«	FSG
2007	Cruise ship	»Aida Diva«	Meyer Werft
2008	Cruise ship	»Celebrity Solstice«	Meyer Werft
2009	SWATH pilot vessel	»Elbe«	A & R
2010	Mega yacht	»Eclipse«	Blohm + Voss
2011	Freight ferry	»Seatruck Progress«	FSG
2012	LNG tanker	»Coral Energy«	Meyer Werft
2013	Mega yacht	»Azzam«	Lürssen
2014	Research vessel	»Sonne«	Meyer Werft
2015	Multipurpose vessel	»Murman«	Nordic Yards
2016	RoRo vessel	»Searoad Mersey II«	FSG
2017	Mega yacht	»Aviva«	A & R
2018	Cruise ship	»AIDAnova«	Meyer Werft
2019	Research vessel	»Atair«	Fr. Fassmer
2020	SAR vessel	»Hamburg«	Fr. Fassmer
2021	Mega yacht	»Nord«	Lürssen

## 2021 award goes to Lürssen

Bremen-based shipyard Lürssen wins the 37<sup>th</sup> edition of HANSA's »Ship of the year« award

The last time Lürssen was awarded HANSA's »Ship of the year award« for a shipbuilding project was seven years ago. In 2021, the renowned yard was chosen again, this time for its 142 m mega yacht »Nord«.

Formerly known as Project »Opus«, she was designed inside and out by the Italian studio Nuvolari Lenard. The complex, the under-four-year build, was overseen by Fort Lauderdale-based Moran Yacht & Ship. As usual, the shipyard hasn't revealed any details about this exclusive ship that is said to be owned by the Russian billionaire Alexei Mordashov.

Without a doubt, the most striking feature is the unusual wide bow, which reminds more of an aircraft carrier than an elegant yacht. Made from steel and aluminium to PYC standards, the warship style vessel encompasses six decks and can accommodate up to 36 guests across 20 cabins. The yacht is powered by multiple MTU engines. Her maximum speed is 20 kn, and her cruising speed is 14 kn.

On bridge deck level, a large helicopter landing deck aft with fold-down side platforms provide shelter for Nord's helicopter that can be stowed away in a retractable hangar that slides neatly into the superstructure when not in use. A large sports and diving centre on the lower deck, an oversized swimming pool on the main deck and a fleet of custom tenders are just some of the other features onboard this impressive vessel.

According to Nuvolari, »Nord« was designed with one idea in mind: It should evoke strong emotions in every viewer, not just through sheer size but through the design itself. »Nord« goes beyond traditional yacht design – »she is a warship wearing a tuxedo, an explorer with the elegance of a gentleman's yacht«, said managing partner Peter Lürssen when this new yacht finally hit the water: »We look forward to »Nord« finding her place among her peers as a remarkable statement in large yacht construction based on strong design and expert engineering.« ■

# Beyond frontiers

When it comes to greater sustainability and reducing emissions, the shipping industry needs to turn away from fossil fuels and find new energy sources. Fuel cells could pave the way into a green future on mega yachts

The German yacht builder Lürssen has earned an international reputation as the specialist in exclusive, bespoke yachts of outstanding engineering mastery. Innovation has always been one of the most important driving forces in the company's history.

In 1886 Lürssen built the first motorboat of the world together with Gottlieb Daimler. Since then, more than a hundred luxury yachts hit the water at the shipyards at Bremen and Rendsburg. Among the Top 30 of biggest vessels cruising the seven seas, 15 were built by Lürssen. The latest addition to the fleet was the 142 m project »Nord«, only recently delivered to Russian billionaire Alexander Mordashov.

For years, owners of newbuilds were concerned with the utmost luxury on board and numerous features such as mini-submarines, underwater salons and helicopter hangars. However, the focus on sustainability is also gaining in importance in yacht building. While engineers have always been keen to maximize the efficiency of ship operations, owners are now more and more demanding sustainable designs and technical solutions.







The energy demand on board luxury ships is considerable. It is needed for propulsion, but even more so for hotel operations, for a variety of equipment such as heating and air conditioning, the galleys, spas, bars and all the other amenities that the owners and their guests want to enjoy. To date, modern combustion engines or generators are used to provide the amount of power needed.

When it comes to greater sustainability and reducing emissions, the shipping industry must turn away from fossil fuels and find new, green energy sources. These can be alternative fuels. Or new technologies can be used that shipbuilding has never known before. The family-owned company Lürssen, led in fourth generation by Friedrich and Peter Lürssen, claims to be at the forefront of the industry in implementing innovations and new technologies on its ships.



Therefore, it is no surprise that Lürssen is now building the first yacht with fuel cell technology for a pioneering and technology driven client. This new climate-neutral yacht project, which is likely to become an emergence into a new era, is known as »Alice«. Although Lürssen usually remains very discreet when it comes to yachts under construction, some details have already been revealed.

Core of this technological leap is a state-of-the-art fuel cell that flanks the conventional diesel generators. This innovative technology should allow the yacht to anchor emission-free or to cruise 1,000 miles at slow speed by using only the fuel cell for propulsion. Peter Lürssen states: »My great grandfather built the world's first motorboat, my dream is to be the first to build a yacht without a combustion engine.«

Since 2005 Lürssen has been involved in research projects aimed at using fuel cells on ships in order to advance sustainable shipbuilding. One example is the national research project PaX-cell together with Besecke, Carnival Maritime, DLR, DNV, EPEA, Freudenberg and Meyer Werft. The aim was the development and testing of a hybrid energy system with a new generation of PEM fuel cells for yachts and seagoing passenger vessels.

Meanwhile, Lürssen has set up an Innovation Laboratory to simulate and test the integration and operation of a Marine Hybrid Fuel Cell System. »We don't just want to use the latest technology on our yacht – we want to ad-

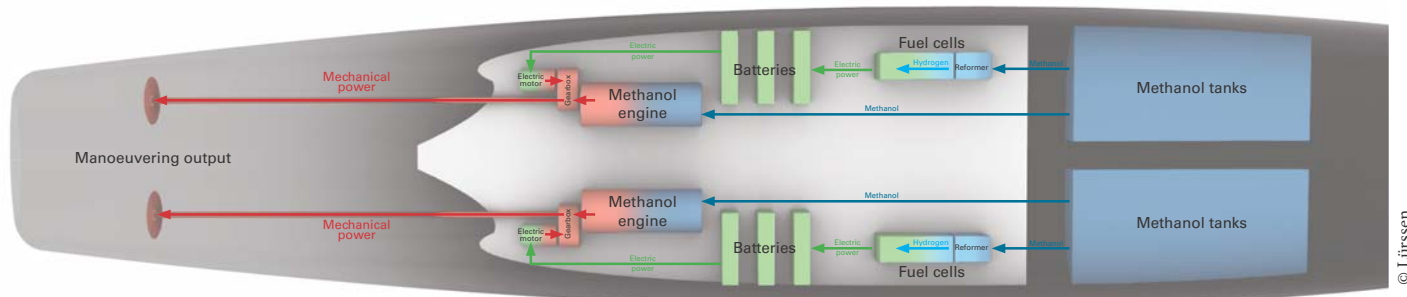
vance the status quo.« And in order to change things, you have to be active,« says Peter Lürssen.

### Hydrogen from methanol

Under real life ambient conditions and with all required auxiliary systems this demonstration plant will help to bring fuel cells on board a yacht successfully. The shipyard has committed to a strategic partnership with Freudenberg, one of the leading experts for maritime fuel cells.

Lürssen's and Freudenberg's concept is a fuel cell driven by hydrogen which is continuously reformed from methanol. The choice of methanol rather than elemental hydrogen has been made due to its higher energy density, the simplicity of handling and easy world wide availability. But most important, methanol can be stored in structural tanks in the double bottom of a yacht in contrast to pressurized or liquefied hydrogen which requires valuable space above the tank top and extensive tank structures. For higher speed and energy demands, an additional methanol engine will be added.

Methanol is an important base material for the chemical industry and has been an option to be used as clean fuel for decades. When produced from renewable sources like by CO<sub>2</sub> capturing from the atmosphere, methanol, is completely climate-neutral. Due to the low dynamic capability of fuel cells the system layout and the



combination with other energy converters and storages is the key for a successful installation.

Thanks to the modular construction the methanol fuel cell system can be adjusted to a customized yacht to keep space requirements and costs as low as possible and the total efficiency of the system as high as possible. Fuel cells cause almost no noise or vibrations, need only minor maintenance and are more efficient than diesel engines. Most important emissions like nitrogen oxides, sulphur oxides, soot and even CO<sub>2</sub> can be avoided when green methanol is used.

»The yacht, which is currently under construction, will be able to stay more than 15 days at anchor with the night time power supply being a zero emission mode. And the yacht can reach more than 1000 miles slow cruising with zero emission,« Peter Lürssen comments.

### More energy savings

Furthermore, energy saving technologies such as waste heat recovery utilisations recover heat emissions for use within the HVAC system, for both heating and cooling-purposes. This is complemented by mirrored glass windows around the owner's deck where reflecting the heat serves for thermal insulation and reduces energy load of the air conditioning systems, according to Lürssen.

Parks and ponds transform the yacht's deck into a natural paradise, which when combined with the living walls in the interior, create a unique ecosystem on board. Teak is replaced by fast-growing and lightweight organically farmed wood that meets the high standards for yachts. *KF*

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## »A new era has just begun«

Fuel cells are set to become a major technological leap. Not only the engineers at the shipyards, but also the owners are driving the way to a carbon-free future on mega yachts, says Lennart Pundt, head of project development at market leader Lürssen

*The yachting industry is considered to be innovative and solvent. But how important is the issue of sustainability in current and future projects?*

**Lennart Pundt:** A change in mindset has definitely taken place in the market. It has always been about building the most efficient ships possible and reducing fuel consumption but the openness to environmental issues and decarbonization in shipping has become much greater in recent years, among all stakeholders, not only among shipyards, but also among designers, brokers and of course also owners.

*How does that manifest itself?*

**Pundt:** Engineers at the shipyards and on the customer side have always talked about the best possible technical solutions. In the past, however, innovations were often not implemented for reasons of space and cost. That has however changed significantly and we are making tangible proposals and attracting enormous interest, increasingly also from the owners themselves. We are currently talking about installing a fuel cell on board in every second project, even though we are still in the pilot phase.

*Does the argument »space and »costs« no longer apply?*

**Pundt:** It still does. New technologies unfortunately are generally quite costly. We need however to look at this as an investment, from both the yard and the owner. Take our first ship with a fuel cell as an example. Today, many clients are willing to invest in modern technologies and are willing to even bear the risk of a technology that has not yet been fully tested in practice, and in the process give up some of the space on board.



Lennart Pundt  
Head of Project Development at Lürssen

*Can you specify how much of a financial sacrifice an owner has to agree to?*

**Pundt:** In terms of space, it is perhaps the size of a small salon, but it is more likely that storage rooms will become smaller. In addition, there are constructional changes to the ship's design, because, for example, ventilation openings have to be relocated and the storage of methanol requires a cofferdam. Nevertheless, as a shipyard, we try to build the ship in a way that the owner does not really notice these changes and will be satisfied with

our solution. In terms of investments, we're talking about costs, that will come down substantially over time. Clients still have to decide what they want and how much of a financial sacrifice they wish to make.

*The first mega-yacht with a fuel cell is currently under construction. What will it be capable of?*

**Pundt:** The power output is 1,000 kW – that is enough to supply the hotel with CO<sub>2</sub>-neutral energy for 15 days when the yacht is at anchor or to drive 1,000 miles completely free of pollutants. The current technical status of the fuel cell is not yet able to cover all the energy required. Therefore, in addition to the fuel cell, we also have the conventional systems on board to ensure that the yacht can be used properly.

*Why was methanol chosen instead of hydrogen?*

**Pundt:** Methanol has a higher energy density than elemental hydrogen, it is globally available and can be stored in structural tanks in the double bottom of a yacht without dramatically interfering with the typical layout of a yacht. With pressurized or liquid hydrogen, the design



and technical precautions would be much more complex and much more valuable space above the tank top would be required

*What challenges do you face with such a pilot project?*

**Pundt:** We have been researching this topic for over 15 years and have strong partners at our side. We believe in this technology and are convinced that a new era has just begun. In the past, we have repeatedly pushed ahead with new technologies and successfully implemented them. We are ready for new challenges.

*Is the fuel cell the energy source of the future, even for propulsion?*

**Pundt:** The fuel cell is a great leap forward in technology, and we are now taking the first step. The electrical power requirements of a large yacht can be up to 1.5 MW and more, we will only start with 1,000 kW. In hotel operation with a constant base load, it is already technically feasible today. For propulsion with many load changes and different driving profiles, it is more complicated.

Fuel cells do not act as dynamically as diesel engines, so we need complementary battery solutions. But this is the way into the future, along with other measures. We are working hard on this.

*Which other technologies can be used to drive sustainability?*

**Pundt:** First and foremost, the overall energy consumption must be reduced which means that the less power has to be generated and in the end, fewer emissions are produced. We take a holistic view of the ship. We have already been installing soot filters and catalytic converters for a long time. In addition, there are a number of other energy-saving measures. With mirrored windows or shadowing structures, less energy is needed for the air conditioning system which is the largest consumer on board. The same applies to efficient waste heat recovery for heating the pools or floors or for generating hot water on board.

*Interview: Krischan Förster*

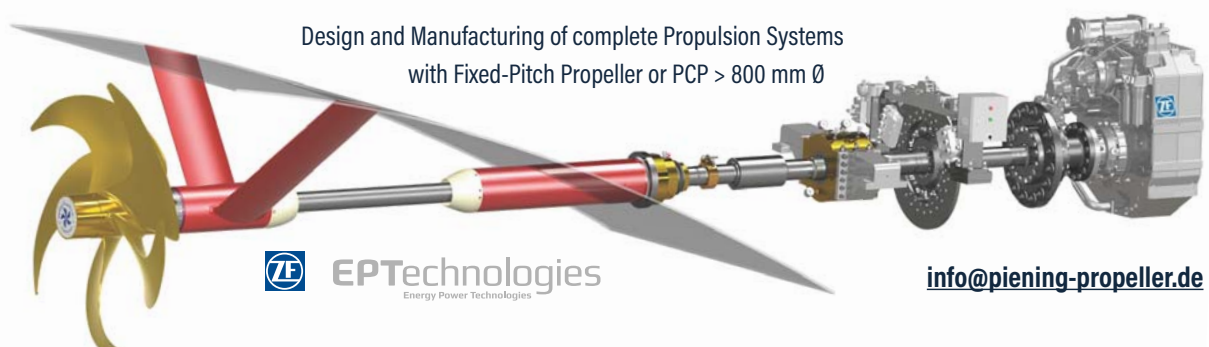
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# Naval Tradition and Innovation

Frigate »Nordrhein-  
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F223



German naval shipbuilding is based on a long tradition and a history of upheavals and re-starts. Today, the industry is considered highly competent. Customers come from all over the world, but the needs of the German navy are also extensive

**T**o understand naval shipbuilding in Germany in an appropriate historical context, one has to look far back into the 19<sup>th</sup> century. What began with the revolutionary events of 1848 can be dated as of the start of German warship construction in 1852 with the founding of the imperial shipyards in Danzig, Kiel and Wilhelmshaven.

In the following decades, a significant industry emerged with illustrious names that achieved worldwide recognition. In the first half of the 20<sup>th</sup> century, German battle-ships and submarines also established a legendary reputation in terms of quality and technology, although the development was already tainted by the shadows of war.

Without glorification, one can claim that the fresh start after World War II with the founding of the Bundesmarine was also successful as it was possible to build on the existing virtues, qualities and achievements. The result was a broad-based naval shipbuilding industry that experienced splendid times in all sectors featuring further developments and technological breakthroughs. Examples include the fuel cell and the use of amagnetic steel.

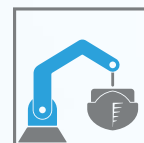
The worldwide demand for German ships still continues. Made in Germany can be seen as a symbol of quality on all seven seas. While, during the rearmament phase, two dozen shipyards were building destroyers, supply ships, fast patrol boats and minesweepers, the re-

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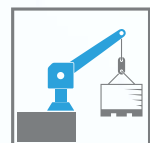
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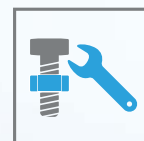
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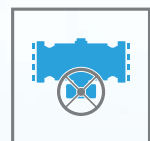
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Minehunter »Datteln« – Innovations with amagnetic materials

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duction of the armed forces, the downsizing of the German Navy to its current size of less than 50 units, has had significant impacts on the shipbuilding industry.

The financial crisis that followed 2008 not only affected the global shipbuilding industry, but also led to profound structural changes in Germany with a significant reduction in jobs and locations. The strategic orientation also changed, since development, construction and project planning also depended on suppliers at home and abroad.

An industry that sees itself as part of German security provision must also be able to operate in a European context and be allowed to export. If not, competence and personnel will be lost, investments in new technologies will be reduced, and less research will be done. The bitter consequence would be to spend the defence budget abroad rather than keeping it within the German value chain.

### Nationwide supply chain

»National missions ensure state sovereignty and political freedom of action.« The changes have led to various national cooperative ventures, such as the K130 corvettes, F125 frigates and exports to Algeria and Israel. Particularly successful in this regard is German submarine construction, which is unique on the global market for conventional submarines and has been classified as a key technology by the government since 2015.

In 2020, and after tough discussions, surface shipbuilding was also declared as such. The intention is to thus strengthen nationally and to invest taxpayers' money also in their own country. »In this way, we not only ensure the preservation of know-how in our own country but also ensure that billions of taxpayer dollars that flow into shipbuilding remain in our own country.« So said MdB Siemtje Möller, then defence policy spokeswoman for the SPD,

now parliamentary state secretary in the Federal Ministry of Defense.

Naval shipbuilding is important. Only if ships were built in Germany could the know-how and the numerous jobs in the industry be maintained long-term.

What can the German shipyard industry achieve today? Naval shipbuilding includes the ability to build frigates, corvettes, support and supply units, submarines and mine countermeasures vehicles, to protect them and ensure their long-term operation systematically, both technically and logistically. The primary customer is undoubtedly the German Navy, but the offer can also be made to foreign customers. This includes the entire supply chain and subcontracting from all over Germany because the maritime industry is not only found on the coast but also in Bavaria and Baden-Württemberg, where globally active companies can be found from engine manufacturers to gearbox manufacturers.

But the implementation of command and control equipment and weapon systems is also part of the know-how of naval shipbuilding. The German Navy thus has state-of-the-art units with the latest technologies and the highest quality. The worldwide demand leads to a high export rate; German ships and boats can be found in South America, the Near East and North Africa. This accounts for one-third of the total turnover of the German shipbuilding industry, at around 1.5 bn €. The current projects are:

- Frigate 125 has been due to join the navy since 2019. The last unit, »Rheinland-Pfalz«, will be commissioned in 2022.
- The keel of the second batch of corvette 130 was laid in 2020 after unprecedented rapid planning. From 2022 to 2026, five ships will be handed over.
- Two 212CD submarines will be built in German-Norwegian cooperation and delivered by 2026.





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Cutting-edge technology: Class 212 submarine

- Extensive modernisation measures will be carried out on the F124 and F123 frigates.
- Construction of new service supply vessels to replace the obsolete units.
- Construction of new fleet service boats.
- Construction of various new support vehicles for defence technology services.

The successor to the F123 frigates is project F126 (ex MKS180), through European cooperation with the Netherlands. The successor F124 is the »Next Generation Frigate« (F127).

The extremely welcome financial injection in July 2021 was a significant step towards maintaining the operational capability of the German Navy. However, this has not meant an upgrade but merely a renewal. It does not change the number and size of the navy. And there is still a huge need to replace obsolete units:

- The German Navy's mine countermeasures component is being modernised once again, and it must take place before the end of this decade
- The 404 class tenders are also in their third decade of service; Medium Support Units (MUSe) are needed as replacements.

- Auxiliary and operational vessels are partly over 50 years old (tugs, auxiliary and support units, accommodation ships)

However, the navy's wish list also includes additional components for national and allied defence, such as up to 20 combat boats for amphibious operations, and lacks components for secure sea transport, the sea-laying component and evacuation or humanitarian operations. The capability gap also affects landing craft and dock ships. Germany would have a lot to offer not only for its crisis preparedness but also to support friends and allies. In this respect, it is not only about ensuring the operational capability of the navy or maintaining and expanding national capacities; it is about national independence and security provision.

Therefore, the development of the security situation in the world must be taken into account in German foreign and security policy. As an industrial and trading nation, Germany depends on vital sea routes. It is not only about consumer goods; it is about importing raw materials and exporting products. This ensures the prosperity of our society. By securing the sea routes, the German Navy is a guarantor for this process. This is also an international contribution to NATO and Europe. ■



# F126. Unser gemeinsames Ziel.



**DAMEN**



The workers at Neptun Werft are considered renowned experts for the construction of river cruise ships

## Ready for new orders

German inland shipyards have seen better times. However, two new public funding programmes provide essential assistance and hold great potential. Various innovative projects testify to the industry's expertise

**W**ith the order book at the lowest level for ten years and ferry and cruise shipping going through the worst crisis since World War II, shipping and shipbuilding for inland navigation are facing hard times. Nevertheless, German shipyards have a lot of capabilities and expertise to deliver sophisticated new buildings and quality-proven repair and retrofit projects.

Just one example: The shipyard Barthel, established far back in the 18<sup>th</sup> century, has just built the world's very

first Pushboat equipped with a fuel cell. The »Elektra« is a joint project of Barthel (shipyard) together with the Technical University of Berlin (design), the terminal operator Behala (contractor), HGK Shipping (technical management) and numerous suppliers. New industrial partners for the fuel cell, the battery pack, and the hydrogen supply were among them. The »Elektra«, which will operate between Berlin and Hamburg in the future, is currently and without doubt the most innovative ship-



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## GERMAN INLAND SHIPYARDS AT A GLANCE

		Total	Change to 2019
Deliveries	vessels	45	-5
	€ mill.	222	+3
Orders	vessels	46	+1
	€ mill.	39	-61
Order backlog	vessels	63	+2
	€ mill.	145	-177
Repair	Turnover € mill.	95	+5
Exports	vessels	10	-5
	€ mill.	187	-1
Utilisation		85%	-4%
Employees		1,800	-10%

© VSM

building project in Germany, setting new standards and, after a successful trial, could trigger the construction of similar ships.

### Joint venture for electrification

Another interesting project is the electrification of the successful workboat type »Spatz«, which has already been built more than 100 times with diesel engines. The propulsion specialist Jastram, the shipyard Bolle and the battery manufacturer Tesvolt, three potent companies, have recently announced that they want to join forces for this ambitious venture. There are other interesting projects on the horizon.

Also worth mentioning is the revival of traditional shipyard Hitzler Werft after the change of ownership one year ago. The new managing directors want to make a splash by building the first Wallaby boat, a high-performance catamaran that can be used as a crew transfer vessel (CTV) for nearshore offshore

wind farms. In addition, CAPEX, OPEX and carbon footprint are significantly lower (50–60%) compared to 24–28 m catamarans. A unique suspension system keeps the platform stable whilst only the hulls react to the waves, thus increasing the comfort and safety of the crew.

### Pandemic effects

But there is also some bad news, and some shipyards face an uncertain future. After more than 10 years in the river cruise sector, Neptun Werft delivered its last two newbuildings to the US client Viking River Cruises in March 2021. Now the orderbook is empty and there are currently no further orders from the inland shipping sector. Instead, Neptun will build engine room sections for large ocean cruise vessels and two tankers for the German navy as a subcontractor for the parent company Meyer Werft. Neptun is unfortunately not an isolated case. The ongoing Covid-19





© Neptun Werft

One of the many new river cruise ships from Neptun Werft: »Viking Gimir«

crisis has killed orders, caused delays in deliveries and severely affected companies' balance sheets.

2019 and 2020 are not far apart in terms of deliveries, though. While 50 barges worth around 219 mill. € were delivered in 2019, 45 units worth around 222 mill. € followed one year later. The picture is different when it comes to orders. In 2019, inland shipyards were able to book 45 orders worth 100 mill. €; in 2020, there were 46 orders, but only worth 39 mill. €.

The difficult situation for the shipyards becomes evident when looking at the order backlog. While 61 ships worth 322 mill. € were commissioned in 2019, one year later, there were 63 ships, but only worth 145 mill. €. This corresponds to a drop of 55 %, the lowest level for more than 10 years.

Two significant fields of strength for German shipyards continue to be the construction of workboats and passenger ships. While demand for the former remains strong, partly due to the impending decommis-

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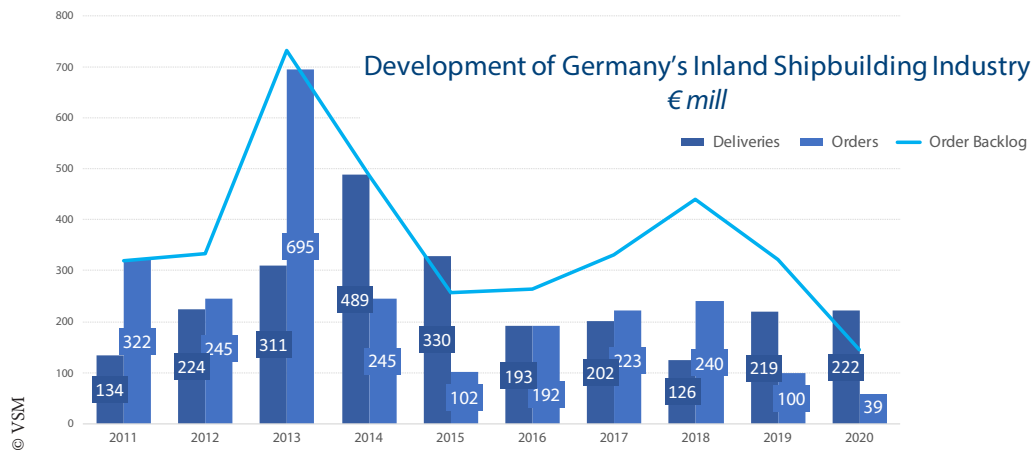
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sioning of older units by various public authorities, the demand for new passenger ships, on the other hand, has declined significantly.

The former driving force for inland shipbuilding, the river cruise sector, is now causing a lot of headaches. Due to the pandemic, the entire passenger shipping industry is experiencing the biggest crisis since World War II, with a standstill lasting weeks. To this day, the German government and the Ministry of Transport refuse to grant compensation to the com-

panies calling for help. Numerous operators are fighting for survival – with negative consequences for the inland waterway shipyards and their suppliers. Orders for new construction have not materialised and deliveries have been postponed.

### Public funding programmes

There is hope, though. After lengthy wrangling between the industry, the federal government and the

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The new electric ship »Berg« was awarded the Allianz Innovation Prize

European Commission, two important funding programmes were adopted in the summer and towards the end of last year. In the programme for sustainable modernisation of inland navigation, around 95 mill. € in state subsidies are provided for environmentally friendly new buildings and conversions.

Previously, only the additional costs to meet the required criteria were subsidised by 40 % to a maximum of 60 %. The effective quota was thus a maximum of 15 % of the investment costs in real terms. Thanks to the new programme, the amount will rise to 60–80 %. All measures that will improve propulsion efficiency or reduce the environmental impact will be eligible for funding.

The total subsidy rate of 90 % applies, regardless of the size of the company, to fully electric drives, the use of alternative fuels, the installation of fuel cells, retrofitting with emission reduction systems or the conversion of stern or bow for better shallow draft capabilities. In addition, digital and navigational systems such as collision avoiding applications are also eligible for funding, as are semi-automatic lock passages if they increase safety and contribute to a reduction of GHG emissions.

This package only includes propulsion systems that do not use fossil fuels. Conventional combustion engines were therefore excluded. Therefore, a second funding programme adds subsidies to the retrofitting of diesel engines as well as retrofits of exhaust after-treatment systems such as Selective Catalytic Reduction (SCR), Diesel Particulate Filter (DPF) and fuel-water emulsion systems.

### Generous subsidy

The new directive was adopted based on a similar model from the Netherlands, where 79 mill. € was provided until 2030. The German Shipbuilding and Ocean Industries Association (VSM) pointed out that it's the most generous subsidy ever granted in Germany for retrofitting lower-emission engines. Depending on the company's size, the subsidy amounts to 40–60 % of the expenditures plus the costs of removal and installation. This is significantly higher than the effective subsidy rate of 15–20 % under earlier programmes when only the additional costs of the investment were covered. Up to 200,000 € are paid per inland vessel. Both programmes are well capable of triggering new orders at German shipyards, both in the new-building and repair sectors. ■



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## SET TANGERMÜNDE

## New dredger for the Weser

At the SET shipyard in Tangermünde, a new seagoing floating grab is being built, which will be used on the Weser and in the coastal area of the North Sea. The operator will be the Waterways and Shipping Authority (WSA) Weser-Jade-Nordsee in Bremen. The »Wesergrund« will be equipped with a Liebherr hydraulic dredger of the type R956 V Litronic by the shipyard, which belongs to the Rönner Group. Part of the requirement profile is that the vehicle can navigate in shallow waters without any restrictions. It has an overall length of 47.05 m, an overall width of 10.50 m and a draught of 1.30 m. The fixed point height is 4.80 m. The speed when sailing alone is given as a maximum of 16 km/h and 13 km/h with a pusher tug in convoy. The electrical



© SET

energy for the DC propulsion system and the onboard power supply system is provided by three Scania generators with variable speeds. The rudder propellers from Hydro Amor, type 3400 HD, each with an output of 323 kW at 735 revolutions per minute, are supplied with the required power via an electrically driven hydraulic pump. The ship also has a Schottel SPJ 57 RD bow thruster with an output of 220 kW.



© Hermann Barthel Shipyard

## HERMANN BARTHEL SHIPYARD

## Training ship for DGzRS

For the first time in their history, the German sea rescuers are getting their own training ship. The 22 m long ship was built by the Hermann Barthel shipyard in Derben on the river Elbe. According to the DGzRS, it is explicitly not a powerful, fast rescue unit, but a conventional displacement vessel with a steel hull. Two Cummins engines power the 11-knot vessel. They are identical in construction to those of the newer boats in the fleet to facilitate the technical training and further education of the sea rescuers. Three crew members will drive the training vessel. Eight trainees or volunteers can be accommodated onboard and trained at appropriately equipped technical navigation stations.

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## HITZLER SHIPYARD

## Innovative Wallaby catamaran

The Hitzler shipyard based in Lauenburg has inked a special order: It is building the prototype WB-18 for the first commercial offshore catamaran with suspension. It was designed by the company Wallaby Boats in Kappeln.



© Wallaby Boats

The principle of Wallaby Boats is special: the catamaran's hulls are separated from the bridge deck and connected to it via four spring strut constructions. According to the company, the design was modelled on off-

road vehicles used in the automotive industry. Thanks to this technology, it is possible to reduce the influence of the swell on the people on board by at least 40%, which should make it considerably safer for technicians to climb onto offshore wind turbines or pilots onto freighters. It would also »significantly improve transport comfort for passengers and substantially reduce the risk of seasickness«, it adds. The prototype is scheduled for completion in the second quarter of 2022.

The company was founded at the beginning of 2021 specifically and dedicated for the development and construction of these types of vessels and emerged from Offcon GmbH in Kappeln. Offcon spent several years trying to realise the project with industrial partners. Finally, it was WTSH that made it possible through its support to turn the concept into a first draft.

The German energy company EnBW entered into a multi-year charter contract for the prototype and was prepared to provide part of the charter during the construction phase.

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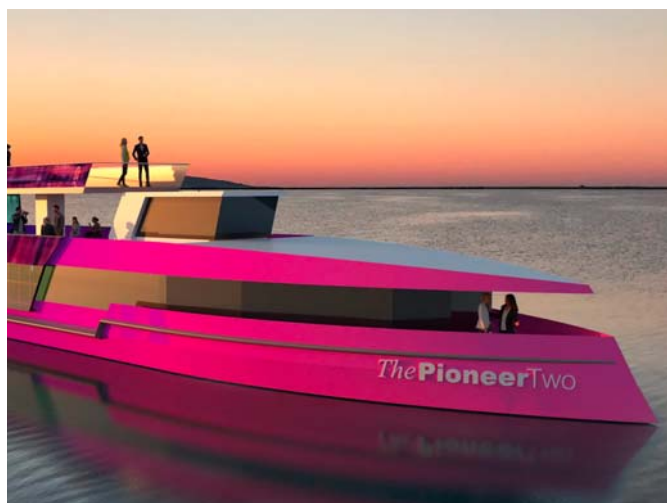
## LUX SHIPYARD

### Second media boat

For one and a half years, the media ship »Pioneer One« has been sailing on Berlin waters. Gabor Steingart, journalist, author and media entrepreneur, has now announced that there will also be a second unit ship as part of an expansion: the »Pioneer Two«.

The construction is already in the planning stage. »Together with the Lux Werft in Bonn Mondorf – which also built the Pioneer One – we have created the technical and organisational conditions for the construction of a second media ship, the »Pioneer Two«,« Steingart announced. He also gave first insights into the technical details: The new ship is to have a length of 52 m and a width of 8.20 m and thus be larger than the »Pioneer One«. Once completed, it will contain two studio complexes and the exclusive four-metre-high ballroom with 110 m<sup>2</sup>, which is intended for TV productions, digital conferences and gala events. In addition, there will be an 80 m<sup>2</sup> LED surface on the ship's hull for broadcasting live events, a retractable sky lounge for receptions and open-air productions six metres above the waterline.

Like the first ship, the »Pioneer Two« will be financed with the help of investors. A date for the launch has not yet been announced.



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